Redesigning developmental education:
A comparative study

by

Paula Dean Fuller

B.S., Prairie View A & M University, 2004
M.S., Prairie View A & M University, 2006

AN ABSTRACT OF A DISSERTATION

submitted in partial fulfillment of the requirements for the degree

DOCTOR OF EDUCATION

Adult Learning & Leadership
College of Education

KANSAS STATE UNIVERSITY
Manhattan, Kansas

2024

Abstract

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The researcher sought to compare student success rates and persistence for students enrolled in co-requisite English courses to those enrolled in traditional, freshman-level English. Using data from an institution that will be referred to as Southeast Texas Community College, the study revealed that there were only a few areas where there were statistically significant differences in the outcomes. However, the results were still rather encouraging and tell the story of additional measures that should be explored to continue to improve student success through institutional, programmatic, and instructional reform.

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Table of Contents

List of Figures

List of Tables

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I am forever indebted and eternally grateful for your support!

Dedication

To my incredible family, unwavering friends, and amazing loved ones.

For my loving ancestors, my present self, and my ever-evolving future legacy.

A call to the marginalized, financially insecure, underrepresented, non-traditional goal-chasers. Keep striving forward.

Preface

To the readers of this work, may you be inspired to continue to investigate and listen to the story the data aspires to share.

Chapter 1 - Introduction

1.1 Overview

For many, the idea of attaining a college education is the cornerstone for a productive and meaningful quality of life. Many individuals recognize this ideal and make a genuine attempt to pursue this endeavor. The plethora of transitional hurdles students face are many, including, but not limited to, the technology gap, part-time and reenrollment issues, family and financial commitments, and inadequate initial skills (Cuyjet, Howard-Hamilton, & Cooper, 2011). Many of these barriers can be overcome. In fact, students are more likely to complete college if they attend institutions that fit their social, academic, and financial needs (Cochran & Coles, 2011). Many of these students are looking to take advantage of opportunities offered through education. Adult learners, also referred to as nontraditional students, tend to drop out of college at a much higher rate of 38.9% compared to traditional learners, whose rate is only 18.2% (Cuyjet, Howard-Hamilton, & Cooper, 2011). For the purposes of this research, nontraditional college students are defined as those older than 24 years.

In preparing students to enter college, there are, in some cases, gaps regarding the students' expectations and reality. The journey often begins with great hope and aspiration; however, somewhere along the matriculation process, there is a disconnect to post-secondary credential attainment due to the need for educational remediation in order to be academically prepared for college-level coursework. Research attributes this disconnect to issues concerning academic, social, and economic readiness (Byrd & MacDonald, 2005). This is particularly true for students at community colleges. According to one account, a third of all first-time freshmen require at least one developmental course, including perhaps as many as 60% of community

college students (Pretlow & Wathington, 2012). At least 25% of all college students (community and four-year) still require at least one developmental course as of 2022 (Barrington, 2022).

Remedial education significantly contributes to lowering student retention at two-year institutions such as community colleges. A large proportion of first-time, community college students enter schools each year in need of developmental education, but few succeed in making it through these programs to college-level courses, let alone earning a certificate or a degree. Remedial students are more likely to drop out of college without completing a degree. Less than 50% of remedial students complete their recommended remedial courses. Less than 25% of remedial students at community colleges earn a certificate or degree within eight years (Pacello, 2014).

The Community College Research Center (CCRC) studied more than 250,000 students at 57 community colleges in the Achieving the Dream initiative and found that 59% of entering students were referred to developmental math classes, and 33% were referred to developmental reading classes. Another national data study found that 58% of recent high school graduates who entered community colleges took at least one developmental course. Only about one-quarter of these students, approximately 28%, went on to earn any degree or certificate within 8.5 years (CCRC, 2014). However, another study found that community college students who successfully complete their developmental sequence go on to graduate or transfer to a four-year institution at comparable rates to students who began at college-level (Pretlow & Wathington, 2012). More recent statistics from the Community College Review (Barrington, 2022) suggest that, while the situation has improved somewhat, developmental or remedial course requirements remain problematically high.

In this chapter, foundational context will be provided to describe the perplexities institutions face, such as state-wide changes to developmental education programming and national efforts to redesign developmental education to accelerate students through developmental courses, and the policies and agendas in place that have led to such initiatives. This study will examine the implementation of two specific corequisite instructional models by comparing student progress and completion to those in traditional classes. If students in the corequisite classes master the content and perform better than those in the traditional classes, then the andragogy used in the emergent instructional practices will be supported. If the students in the traditional courses perform better than those in the corequisite classes, this practice and andragogy will be supported.

1.2 Statement of the Problem

The problem is that community college students, and especially nontraditional college students, are frequently placed into remedial learning classes that significantly inhibit their path to graduation. Upon entering community college, students are typically placed at a level of remedial course corresponding to their scores on placement testing (Xu & Dadgar, 2018). Unfortunately, this means that students could possibly spend an entire academic year or more in classes that are non-credit bearing and not moving toward their educational or professional goals. At the community college level, around 60% of students who enrolled in the 2014-2015 academic year were placed into at least one remedial class (CAPR, 2022), and counting both community and four-year colleges, at least 25% of all college students with a high school diploma place into at least one remedial class (Barrington, 2022). These remedial courses have a high cost, both financially and academically. Across all colleges, students required to take

remedial courses are 74% less likely to graduate, and remedial classes are estimated to cost families an extra $15 billion annually, with a price tag of $12,000 per student (Barrington, 2022).

To address this problem, educational reformers have developed several new approaches to remedial education. In particular, the Accelerated Learning Program (ALP) allows students to enroll simultaneously in remedial and freshman-level courses and complete them in tandem (Perin, 2018). The ALP approach is intended to address how remedial courses create an undue burden on students by requiring them to attend extra academic years vis-à-vis their peers (Jaggars & Bickerstaff, 2018). However, the relative efficacy of this model in terms of actual outcomes requires further research. In particular, research was needed on the efficacy of specific types of ALPs (Daugherty et al., 2018) and how different developmental approaches influence student success (Woods et al., 2019).

1.3 Purpose of the Study

The purpose of this quantitative causal-comparative study was to compare the successful course completion and persistence of students who were enrolled in co-requisite, developmental English courses paired with freshman-level English to students enrolled in traditional English courses at all campuses of the Southeast Texas Community College. Understanding the impact of co-requisite instructional models, such as the Accelerated Learning Program and non-course-based options, has the potential to transform and equip instructional programs. Having research-based evidence will provide institutions with data that will allow campus and departmental leadership to implement more strategic practices in course offerings and instructional delivery.

1.4 Significance of the Study

It is more than evident that the range of complexities should be considered when taking into account the best course of action in helping students overcome educational barriers. Because

of the cost factor, the sluggish progress through developmental course sequence, in addition to the lack of measurable outcomes showing an increase in credential completion, developmental education can be seen as quite complicated. However, it is important to remember that the objective in these courses is not simply content-related. Instructors are equipping students with the skillset necessary to be competent learners in the coursework encountered in and throughout their collegiate career.

To foster success, social supports and self-efficacy are important factors that have been shown to influence retention for under-prepared student groups in postsecondary education (Smith & Blacknall, 2011). Also, positive peer relationships, faculty and staff mentors, and familial and community support are types of social supports critical in promoting a sense of belonging and increasing student persistence (Smith & Cochran, 2011). Andragogy suggests adults learn best when the learning experience and that the curriculum builds upon the life experiences and interests of the adult learner, and that there is a need for flexibility in regard to student experiences (Cuyjet, Howard-Hamilton, & Cooper, 2011). This can be especially true for the student who has to take remedial or developmental English. If the student can immediately see and apply what is being learned, there is a better chance of that student meeting some level of success. Institutions of higher learning offer more ways for students to acquire the skills, concepts, and experiences that will make them more successful.

Researchers concluded that of 57 community colleges participating in the Achieving the Dream initiative, only 33% of students referred to developmental math, and 46 % of students referred to developmental reading went on to complete the entire developmental sequence. Once enrolled, the pass rates for college-ready and developmental students—regardless of their remedial level, or whether they took or skipped their remedial requirements—are very similar,

hovering around 75%. Nevertheless, because overall gatekeeper enrollment rates are low (62% for English), less than half of all students in the college system pass gatekeeper English, and just over a quarter pass gatekeeper algebra (Bailey, Jeong, & Cho, 2009).

The results of this study have the potential to help institutions further refine their instructional efforts to continue to drive the mission of higher education. Equipping students with the opportunity to gain foundational skills, master competencies, and learning outcomes while earning college credits not only has the potential to transform lives but could also be a catalyst for program reform as well. Identifying co-requisite modes of instruction that significantly impact students and are most effective for redesigning developmental English programs are more likely to provide a conducive learning experience and potentially increase enrollment, student success, and course completion.

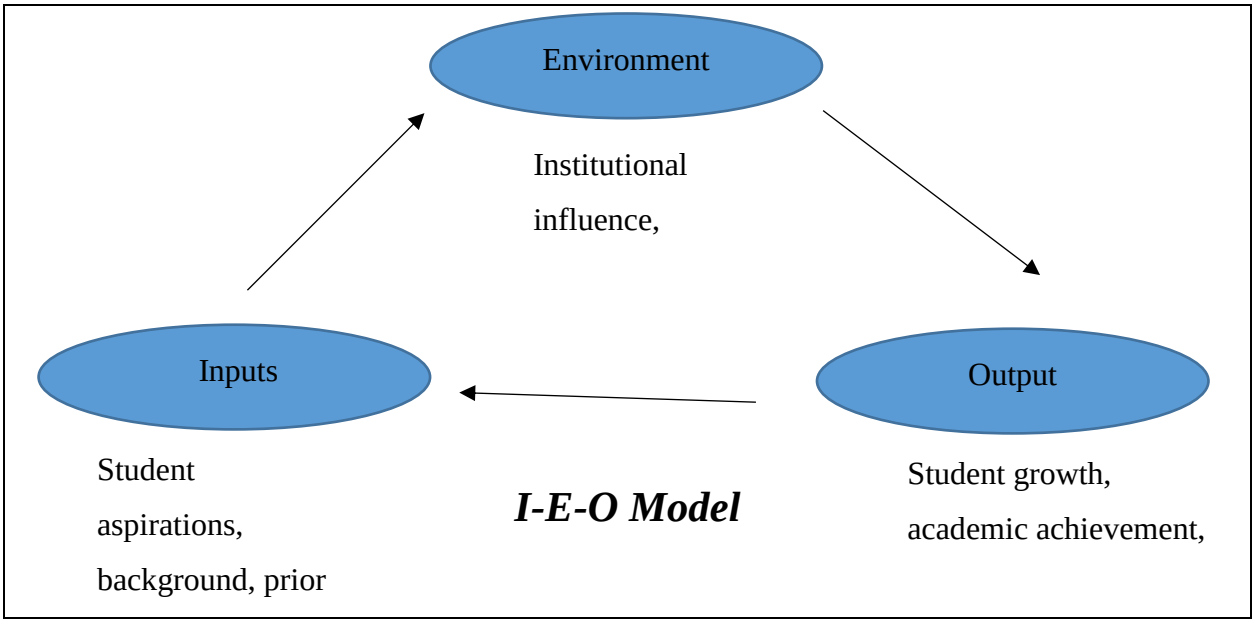
1.5 Theoretical Framework for the Study

The theoretical framework for the present study combined Dr. Alexander Astin's development and engagement with Dr. Vincent Tinto's theory of retention. The present study was concerned with two key outcomes, namely persistence/retention and academic success. Per Pistilli and Garner (2015), a select group of theorists who encapsulate the understanding of retention and student success. Dr. Astin's theory of student development and engagement is one of them. Astin's input-environment-output (I-E-O) model was designed to be used as a guide to foster "investigation of student development outcomes" (Astin, 1999). This theory suggests that students are more "proficient the more they are involved in the academic and social aspects of life" (Long, 2012).

The model suggests that not much can be done about the background or experiences of students, referred to as inputs. However, the environment to which the student is exposed and is

engaged is where institutions have the most control by providing opportunities for engagement, thus providing an opportunity for a more conducive output in students' academic abilities, behaviors, retention, and skills (Pistilli & Garner, 2015). Figure 1 presents a visual model of the I-E-O theory's processes and how they affect students. Astin's theory suggests the college environment has a strong impact on its students, and campuses where faculty have a "strong orientation towards students" have profound effects. Students are more pleased with the campus and classes and are more likely to develop stronger academically. Astin's research also demonstrates environmental influences, such as the importance of peers in student development (Astin & McKelfresh, 1993).

Figure 1.1. Astin's Student Involvement Theory



Along with Astin, Tinto also recognized the uniqueness students bring to the college environment. Similarly, institutions of higher education are also comprised of unique characteristics. Tinto's theory of retention suggests students may be more inclined to leave the

college if they are not matched with the institution. Academic problems, failure to integrate socially and intellectually with the college culture, or a low commitment to the school are the three main reasons that students depart from the campuses or programs (Tinto, 2023). Tinto encouraged colleges and universities to be intentional in their efforts to involve students and create opportunities for patterns of student engagement where students can create networks like in "appropriately implemented learning communities" (Tinto, 2023)).

Combining these two fundamental theories offers a comprehensive student success and retention model. Both models indicate the importance of environmental factors, and the co-requisite developmental education strategies being researched in this study fell into that category. In this regard, the I-E-O model helps explain the effect of co-requisite developmental strategies on academic success. On the other hand, Tinto's theory of retention helps understand the impact of those strategies on students' persistence.

1.6 Design of the Study

This comparative quantitative study attempted to determine statistically significant differences between the success of students enrolled in freshman-level English courses paired with a developmental co-requisite like the Accelerated Learning Program (ALP) and those students enrolled in traditional, freshman-level English courses. The researcher employed statistical analysis to the control group, the traditional courses as the independent variable, and the intervention, the co-requisite model being the Accelerated Learning Program and the non-course based options offered at a large urban community college system. Data was retrieved through the Office of Analytics and Institutional Reporting at Southeast Texas Community College. The population for this study consisted of two sets of students, both from the period Fall 2017 through Spring 2020, which comprised the periods for which ALP has been offered at the

study site. The two populations of interest are all students classified as freshmen students normally enrolled in freshman English (ENGL 1301) and all students enrolled in freshman English (ENGL 1301) along with a developmental co-requisite course as deemed appropriate by enrollment advisors. The population was comprised of students at all campuses, though only from the periods during which each campus had its active Developmental English co-requisites offered.

1.7 Research Questions

The researcher used the following questions to guide the study:

> R_1– How do student success rates in co-requisite English courses compare to success rates in traditional, freshman-level English courses?

The researcher was looking to examine the course success rates of students who have completed developmental English by way corequisite instruction. The researcher was interested in finding out how these students compared to other students who have gone through the traditional English sequence.

> R_2- Is there a difference in persistence between students who successfully completed co-requisite English courses compared to students who have completed traditional, freshman-level English courses?

By examining the rates of completion, the researcher was looking to examine how likely the successful students were to continue with their education after passing their gateway course paired with co-requisite instruction. The researcher was interested in what percentage of these students continued to take classes the following semester compared to other students who passed freshman-level English and their enrollment in courses the subsequent semester.

R_3- What is the difference in student completion, based on gender and race/ethnicity, of students who completed a co-requisite English course?

R_{3a}-*Is there a difference in student completion based on gender?*

R_{3b}-*Is there a difference in student completion based on race/ethnicity?*

In answering this question, the study focused on the intersectionality of remedial/developmental issues and other factors. Per the Community College Review (Barrington, 2022), forced remedial or developmental course enrollment under the traditional model disproportionately hurts certain groups of students, especially students of color. There is also a significant gender gap in college enrollment. This third research question, therefore, helped to understand whether or not the impact of the corequisite model was any different across racial or gendered lines. This is important because if the corequisite courses were less advantageous for students of color, such a finding would weaken its benefits.

1.8 Assumptions of the Study

Assumptions are unprovable assertions that underlie a study (Merriam & Tisdell, 2015). All research is based on assumptions, and this study was no exception. There were several important assumptions as follows. First, it was assumed that the researcher would objectively and statistically analyze data using appropriate statistical tests. It was also assumed that the sample in the study was representative of the make-up of the student body within the institution. In addition, it was assumed the data received from the Office of Analytics and Institutional Reporting were accurate and reliable. It was also assumed that highly trained, well-educated professionals facilitated these courses and employed best practices while providing instruction. In addition, ethical considerations and assumptions were made that there were minimal risks to participants as archival data will be coded.

1.9 Delimitations of the Study

Delimitations are the boundaries of a study (Merriam & Tisdell, 2015). The researcher set delimitations to focus the study on a specific research problem. There were several delimitations in this research. First, the study was delimited to a specific community college system in Texas. This decision was made based on accessibility and feasibility. Second, the study was delimited to the comparison of students enrolled in co-requisite English courses, namely ALPs or non-course-based options, and their peers in freshman-level English courses for simplicity, as adding multiple modes of learning would have added significant complexity to the study. Another delimitation in this study was the specific timeframe in which data was gathered. The researcher selected this period because it was during the implementation phase as set by the Texas Legislature. In addition, the research gap indicated this focus on the co-requisite model. The study was also delimited to community colleges in alignment with the research gap as, while the problem exists more broadly, it is especially acute at community colleges (Barrington, 2022).

1.10 Limitations of the Study

Limitations are weaknesses of a study (Merriam & Tisdell, 2015). Limitations are typically inherent in the research design and are unavoidable. There were several limitations present when conducting this study. First, the focus of this study was to examine the specific co-requisite instructional models of ALP and non-course-based options that were implemented at the community college system under study. Thus, the findings from this study may not be generalizable to other institutions that implement different approaches or even to similar programs that use different implementation strategies. The results are also limited in the sense that the community college system under study relied on not only the Accuplacer test but also a Texas-specific placement exam. As a result, the results may not generalize well to schools that

employ different placement strategies. Also, the data requested were limited to those available in the college system's archived records, meaning that no new variables could be included in the research design. Another issue beyond the researcher's control was the placement of students based on college entrance cut-scores. The range may vary considerably, which puts students in different courses or program levels. Gender and ethnicity are the extraneous variables that were examined in this study.

1.11 Definition of Terms

The following key terms were central to the study:

Accelerated Learning Program (ALP)

In 2007, the Accelerated Learning Program (ALP) was launched. This innovative instructional model allowed upper-level developmental English students the opportunity to be "mainstreamed" into freshman-level English. In doing so, several sections of freshman-level English were designated as ALP sections. In these sections, half of the seats are reserved for developmental English students who scored high enough to be in the upper-level developmental English course. The developmental students who enroll in the ALP-English course are in class with students who are deemed "college-ready." In this model, both college ready and non-college ready students are in the same class. There are no identifiers distinguishing one type of learner from the other (Jenkins et al., 2010).

Community College

Community colleges are two-year schools and often have especially high enrollment by nontraditional students (Xu & Dadgar, 2018).

Co-requisites

Co-requisites are a type of ALP. The co-requisite course model offers colleges an opportunity to "enroll students in remedial and college-level courses" concurrently (Complete College America, n.d.). By allowing students to mainstream their developmental education course with the college-level class, students are able to focus on specific and relevant content areas as opposed to having to enroll in the college-level course at a later time and date. This type of sequencing of courses helps to limit course avoidance and improve chances of college completion (Schak et al., 2017).

Developmental/Remedial Courses

Developmental or remedial courses are courses taught in college meant to teach students content that is considered high school level; hence, these courses do not award college credit (Xu & Dadgar, 2018).

Non-Course-Based Options

Non-course-based options are interventions that are prescriptive in nature, depending on the need(s) of the student. These interventions, however, "must be overseen by an instructor of record, must not fit traditional course frameworks, and cannot include advising or learning support that is already connected to a traditional course" (Texas Higher Education Coordinating Board, 2016). What non-course-based options offer students is an additional means of support and enrichment through, but not limited to, tutoring, supplemental instruction, or labs while enrolled in their college-level course. In doing so, instructional support is directly aligned with not only the learning outcomes but also the instruction and assessment of the college-level course (Zarate, 2017).

Persistence

Persistence refers to students' continuation at school, either from one academic year to the next or to the point of graduation (Goldwasser et al., 2017).

Successful Completion

For the purpose of this study, a student's successful completion is noted by the end of course grade average equating to a score of A, B, or C (Texas Higher Education Coordinating Board, 2021).

1.12 Organization of the Study

The following chapters of this dissertation include an in-depth review of the literature in the canon related to developmental English, including reading and writing, non-course based options, accelerated instruction, and co-requisite instruction in developmental education. This information is reviewed in Chapter 2. The following section is Chapter 3, which will outline the methodology for the study and aspects of its design, including the size, population, source of data, and means for analysis. Chapter 4 will provide results from the statistical analysis of data received from Southeast Texas Community College and a summary of the results of the research questions. The final section, Chapter 5, will provide a summary of the study as well as points of discussion of implications and recommendations for further study.

Chapter 2 – Literature Review

2.1 Introduction

Student success of both recent high school graduates and adult learners can be hindered by such significant factors as being academically unprepared, a lack of needed institutional supports, a lack of engagement or persistence, and other individual or socio-demographic variables that prevent them from being "college ready" (Bahoum, 2017; Daniel, 2020; Garriot & Nisle, 2018; Iriti et al., 2018; Jack-Malik & Kuhnke, 2020; Kahu & Nelson, 2018; Kara et al., 2019; Landorf et al., 2018; Mourad & Hong, 2017; Perin & Holschuh, 2019; Trimble et al., 2017; Uretsky et al., 2019; Woods et al., 2018). Taking developmental education courses during the first year of college can help bridge this gap to foster greater college student success. They may include co-requisite courses that require students to be dually enrolled in both developmental education and credit-bearing college-level courses (Henry & Stahl, 2017; Zarate, 2017). Despite recent interest in improving developmental education to better meet the needs of struggling students, multiple issues were noted that still need to be better addressed such as developmental education classes being non-credit bearing yet still consuming a large amount of time and resources, low course and degree completion rates, a disconnect with a more practical emphasis on vocational skills, and other individual or socio-demographic variables, requiring the need for further developmental education redesign and reform (Bailey et al., 2016; Boatman & Long, 2018; Bunch et al., 2019, 2020; Douglas & Attewell, 2017; Goldwasser et al., 2017; McCann & English, 2017; Rosenbaum et al., 2017; Schack et al., 2017).

Efforts to redesign and reform developmental education programs through accelerated learning that may also include components of co-requisite or integrated methods has been a predominant approach to better address developmental education being non-credit bearing yet

still consuming a large amount of time and resources and has been found to have positive outcomes for students (Bickerstaff & Raufman, 2017; Ernst, 2017; Parkin, 2019; Raushwerk, 2017; Rush, 2020; Rutschow et al., 2019), with the state of Florida being spotlighted in the current literature as taking it one step further by making it optional for students to take any developmental education courses at all, an approach that was found to be particularly effective in helping to address better socio-demographic disparities (Mokher et al., 2020; Nix et al., 2019; Park et al., 2018; Park-Gaghan et al., 2020; Woods et al., 2017). Other redesign and reform approaches were also noted, such as sustainable development, the guided pathways model, greater institutional and community support, an emphasis on self-pacing, or being multi-modal (Flink, 2017; Jenkins et al., 2017; Saidy, 2018; Sawarynski et al., 2019; Treschel rt al., 2018; Weiss & Hedlam, 2019; Xu et al., 2018). Student engagement was recognized as well as being a critical factor for increasing student retention and better addressing low completion rates (Burke, 2019; Cipriano et al., 2019; Gares et al., 2020; Rauchwerk, 2017; Rutschow et al., 2019).

However, the specific problem is that very little is known in the current literature about how student success rates in these developmental education courses compare to success rates in traditional courses (Mourad & Hong, 2017), and little research is also dedicated to comparing these success rates in community colleges, specifically regarding either comparing developmental education students with traditional students or by comparing developmental education students based on different instructional models such as accelerated, integrated, or co-requisite instructional models in developmental English, and in the state of Texas (Paulson & Overschelde, 2019). Addressing this gap will contribute to advancing knowledge in the field and provide educational leaders with important information regarding further refining their instructional efforts with more strategic practices in course offerings and instructional delivery to

continue to drive the mission of higher education and help equip students with the opportunity to gain foundational skills and master competencies that are more likely to provide a conducive learning experience that could potentially increase enrollment, student success, and course completion. The purpose of this comparative quantitative study is to compare the successful course completion and persistence of community college students in Texas who enrolled in co-requisite developmental English courses paired with freshman-level English to students enrolled in traditional English courses.

This first section discussed the problem that motivates this research and identified the specific research gap that this study attempts to fill. Next, the methods of searching will be explained that yielded the sources in this literature review. Then, the theoretical foundation for the study will be discussed. Next, this extensive literature review will include related studies that will be organized into categories, progressing from the broad subject matter toward the gap to be addressed by the proposed study. In the process, three major topics will be discussed: student success and developmental education, redesigning and reforming developmental education, Texas developmental education, and community colleges. Finally, a conclusion will be given to summarize key findings and discuss how the gap was established based on the existing literature.

2.2 Literature Search Strategy

The following databases that were used to conduct these searches were ERIC, ResearchGate, PubMed, and PsycNet. Google Scholar and Google were the search engines used. Search terms included *Developmental education, student success, community colleges, developmental education redesign or reform, developmental education and corequisite, developmental education and accelerated instruction, developmental education and persistence, developmental education and completion rates, developmental education students compared to*

traditional students, developmental English, Texas developmental education, Texas developmental education and community colleges, Astin's theory of student development and engagement, Astin's I-E-O model, Astin's theory of student development and engagement and developmental education, Astin's theory of student development and engagement and community colleges, Tinto's theory of student departure, Tinto's theory of student departure and developmental education, Tinto's theory of student departure and community colleges. Relevant studies were generated from database searches using these keywords, both individually and in combination. Those that were deemed relevant to the study were included in the literature review, with 85% of sources from 2017-2022.

2.3 Theoretical Foundation

Student Development and Engagement theory and Student Departure theory comprise the theoretical foundation of the proposed study. These theories will be explored in more depth in the literature. Then, a rationale for the appropriateness of using these theories as the theoretical foundation for the proposed study will be given based on the findings in the literature.

2.3.1 Student Development and Engagement Theory

Student Development and Engagement theory was developed by Alexander Astin in 1988 and was initially posited in 1984 as student involvement theory (Astin, 1984). Later developed as the I-E-O model of student development and engagement theory as Input, Environment, and Output, this theory suggests that not much can be done about the background or experiences of students, referred to as inputs (Astin & Denson, 2009). However, the environment to which to the student is exposed and is engaged is where institutions have the most control by providing opportunities for engagement, thus providing an opportunity for a more conducive output in students' academic abilities, behaviors, retention, and skills (Astin & Denson, 2009). Astin's

theory further suggests that the college environment has a strong impact on its students and campuses where faculty have a strong orientation towards students and positive peer influence, and if students are more pleased with the campus and classes, they are more likely to develop academically (Astin & Denson, 2009).

2.3.2 Student Departure Theory

Student Departure theory was initially developed in 1988 by Vincent Tinto (Tinto, 1988). Along with Astin, Tinto also recognized the uniqueness students bring to the college environment and the unique characteristics of higher education institutions (Tinto, 1988). Tinto's theory of student departure suggests students may be more inclined to leave a college if they are not a match with the institution, and academic problems, failure to integrate socially and intellectually with the college culture, or a low commitment to the school are the three main reasons that students will depart from the campus or program (Tinto, 1988). Tinto encourages colleges and universities to be intentional in their efforts to involve students and create opportunities for extracurricular activities, informal student interactions, and interactions between faculty and students (Tinto, 1988).

2.3.3 Student Development and Engagement Theory and the Literature

Relevant studies were found in the literature on student development and engagement theory that related to the focus of the proposed study. A systematic review of essential theories that have helped to shape developmental education and build a foundation for professional practice determined that this theory has been a primary source of knowledge about college student development by positing that higher education is a place to produce knowledge and trained workforce, and educators must embrace a talent development model that recognizes not where students begin along the educational continuum but how much they learn and develop

(Higbee et al., 2005). A recent study that utilized this theory to examine the influence of participation in a learning community on undergraduate students' early success at a public college found that these learning communities were effective in increasing student persistence into the second year of college (Gersten, 2018). Another recent study that utilized this theory to explore the out-of-classroom engagement experiences and the perceived impact of these experiences on the persistence of twelve first-generation college students at a college in the Southeastern United States found that out-of-classroom experiences such as living and working on campus, involvement in clubs and student organizations, and volunteer work, can have a positive impact on first-generation student persistence (Hopkins, 2020). A recent quantitative study that utilized this theory to examine institutional environments that contributed to belongingness among students using multiple linear regression analysis found that belonging was associated with participation and completion in numerous collegiate environments, and significant results emerged for certain races, generation statuses, and groups at the intersection of both (Duran et al., 2020). The consensus was found that student development and engagement theory is appropriate and useful for conducting research pertaining to developmental education, college student success, persistence and completion, and socio-demographic variables (Duran et al., 2020; Gersten, 2018; Higbee et al., 2005; Hopkins, 2020).

2.3.4 Student Departure Theory and the Literature

Relevant studies were also found in the literature on student departure theory that related to the focus of the proposed study. A review of the application of this theory to analyze freshman persistence in a community college determined that this theory had predictive validity for assessing student persistence or withdrawal (Halpin, 1990). However, Nicoletti (2019) conducted a recent analysis to focus on how to make the model more operational so that it could be

implemented by universities as an academic computational support system for predicting dropouts and determined that in order to do so, more precise definitions of some concepts needed to be employed as well as the reconsideration of the extreme importance given to the social integration aspect experienced by students for explaining dropout. A qualitative study that utilized this theory to investigate how social and academic integration related to the college persistence of Asian and non-Asian international undergraduate students at U.S. postsecondary institutions by using four logistic regression models found that Asian and non-Asian students differed in the way academic and social integration were related to persistence, depending on their year of undergraduate study (Kommers & Pham, 2016). A recent case study of four students that sought to better understand students' lived experiences of academic difficulty in pharmacy school in relation to Tinto's conceptual schema of student departure found that three of the four students were retained because of the synergistic reinforcement of academic and social integration based upon Tinto's schema, and the fourth student was academically dismissed and departed the college, suggesting that too many social responsibilities in pharmacy college reduced time for academic integration, thereby diminishing the reciprocal potential between academic and social integration (Choi et al., 2019). Consensus was also found that overall, student departure theory is appropriate and useful for conducting research pertaining to college student success, persistence and completion, and socio-demographic variables (Choi et al., 2019; Halpin, 1990; Kommers & Pham, 2016).

2.3.5 Theoretical Foundation Rationale

Student development and engagement theory is still being currently utilized in the literature as a theoretical foundation and was found to be appropriate and useful for conducting research pertaining to developmental education, college student success, persistence and

completion, and socio-demographic variables (Duran et al., 2020; Gersten, 2018; Higbee et al., 2005; Hopkins, 2020). Student departure theory is also still being currently utilized in the literature as a theoretical foundation and was found to be appropriate and useful for conducting research pertaining to college student success, persistence and completion, and socio-demographic variables (Choi et al., 2019; Halpin, 1990; Kommers & Pham, 2016). Therefore, these two theories that comprise the theoretical foundation of the proposed study are also appropriate and useful for exploring the following research questions: How do student success rates in freshman-level English courses paired with co-requisites compare to success rates in traditional, freshman-level English courses? Is there a difference in persistence between students who successfully completed co-requisite English courses compared to other students who have completed traditional freshman-level English? What is the difference, based on gender and race/ethnicity, between students who completed freshman-level English and those who were paired with a co-requisite in their successful course completion?

2.4 Review of Related Literature

In this review of the related literature, the section Student Success and Developmental Education will explore significant factors that impact student success and issues within developmental education that need to be better addressed to help foster rather than hinder student success once students begin college. The section Redesigning and Reforming Developmental Education will examine recent efforts to redesign and reform developmental education to better meet student needs. The section Texas Developmental Education and Community Colleges will focus specifically on the existing literature regarding Texas developmental education and community colleges as most related to the purpose of the proposed study to better understand

what redesign and reform efforts or other significant factors may be the same or may differ that impact developmental education and student success in community colleges within this state.

2.4.6 Student Success and Developmental Education

Many students, including both recent high school graduates and adult learners, may experience significant factors that can inhibit their success in college, such as being academically unprepared, a lack of needed institutional supports, a lack of engagement or persistence, and other individual or socio-demographic variables (Bahoum, 2017; Daniel, 2020; Garriot & Nisle, 2018; Iriti et al., 2018; Jack-Malik & Kuhnke, 2020; Kahu & Nelson, 2018; Kara et al., 2019; Landorf et al., 2018; Perin & Holschuh, 2019; Trimble et al., 2017; Uretsky et al., 2019; Woods et al., 2018). Both individual student and school-level factors may interact together to help or hinder student success (Garriot & Nisles, 2018; Kahu & Nelson, 2018; Kara et al., 2019; Uretsky et al., 2019). Despite recent interest to improve developmental education to better meet the needs of these struggling students, there were many issues that still need to be better addressed, such as developmental classes being non-credit bearing yet still consuming a large amount of time and resources, low completion rates, a disconnect with a more practical emphasis on vocational skills, and other individual or socio-demographic variables, requiring the need for further developmental education redesign and reform (Bailey et al., 2016; Boatman & Long, 2018; Bunch et al., 2019, 2020; Douglas & Attewell, 2017; Goldwasser et al., 2017; McCann & English, 2017; Rosenbaum et al., 2017; Schack et al., 2017).

2.4.6.1 Student Success

Several studies in the current literature focused on academic unpreparedness as a significant factor that hindered student success when beginning college and often necessitated taking developmental education courses because many students were not “college ready.” Woods

et al. (2018) conducted a study to examine how high school coursework predicted introductory-level college course success by analyzing data from high school courses in English Composition 1 and Intermediate Algebra and by developing student profiles to illustrate how students with different combinations of high school coursework were predicted to pass their courses and found that many students who began their higher education may be increasingly required to enroll in corresponding developmental courses, as even students whose coursework designated them as college ready had predicted passing rates of 69.5% in English and 47.6% in Intermediate Algebra. The findings of Woods et al. (2018) establish that many high school students are academically unprepared when beginning college while also challenging the concept of what it means to be "college-ready." One way to assess a high school graduate's college readiness is through the standardized College Readiness Test. Tamayo et al. (2020) conducted a study to establish the validity and reliability of the College Readiness Test (CRT) to measure the combination of knowledge, skills, and reflective thinking necessary to be admitted and to succeed without remediated developmental education in the traditional courses of higher education institutions among a sample of Filipino high school graduates and determined that the CRT had desirable difficulty index (65.64), reasonably good discrimination index (0.22), large functioning distractors (68.91% distractor efficiency), and possessed inter-item consistency to therefore be a valid and reliable instrument to assess college readiness because of it also being contextualized, gender-fair, and criterion-referenced. The findings of Woods et al. (2018) and Tamaro et al. (2020) appear to be somewhat contradictory and provoke more questions, with the need for further research regarding the accuracy and consistency of measuring college readiness among high school graduates. It should also be noted that the findings of Tamaro et al. (2020) were limited only to Filipino high school graduates, strongly implying, in light of other broader

findings, that the CRT may not be as valid and reliable of an instrument to accurately measure college readiness among other high school graduate populations. Another study that focused research on college freshmen added further support to these implications and to the findings of Woods et al. (2018) by determining that one-third of all first-time freshmen in American colleges required at least one developmental course, including perhaps as many as 60% of community college students (Daniel, 2020).

Other researchers focused more specifically on academic unpreparedness that hindered students in the areas of reading and writing. Perin and Holschuh (2019) completed a literature review on the topic of teaching academically unprepared students who were seeking to begin college and established that in the United States, only 38% of students in the last year of high school were proficient readers and only 25% were proficient writers. These researchers further determined that developmental education offered to students in colleges, particularly for students of color, often resulted in unsuccessful outcomes to adequately address academic deficiencies and issues of student persistence. Another literature review of developmental education writing programs in community colleges found that students at community colleges were being placed into developmental writing classes at significantly high rates, as high as 80% at some community colleges (Barhoum, 2017). The findings of both Perin and Holschuh (2019) and Barhoum (2017) lend further support to the broader consensus that many high school graduates are academically unprepared when they begin college, requiring the need for these students to take developmental education courses. Perin and Holschuh (2019) also point to the need for developmental education redesign and reform by finding that developmental education often resulted in unsuccessful outcomes, particularly for students of color.

Issues regarding institutional supports that may help, or hinder student success were explored in more depth through other studies in the current literature. Uretsky et al. (2019) conducted a study to analyze student and school-level factors measured in the final year of high school that impacted student success and contributed to a student being assessed to need developmental math during the first year of community college enrollment by drawing on five years of linked secondary and post-secondary administrative records that included the academic records for 18,814 students attending 228 high schools across 24 jurisdictions in Maryland and found that both student and school-level factors contributed to needing developmental math remediation in their first year of community college, with student-level academic performance in high school having a larger influence on the odds that a student would need developmental education than socio-demographic factors. The findings of Uretsky et al. (2019) indicate that both student and school-level factors contributed to the need for developmental education and provide a greater context for better understanding academic unpreparedness as both a function of student academic performance and as a function of the school attended that may help or hinder student success. Uretsky et al. (2019) also indicated that student academic performance was a greater predictor of the need for developmental education in the first year of community college, at least specific to math than socio-demographic variables. A related study that examined the interaction of stress, coping, and perceived academic goal progress among 363 first and 325 continuing-generation college students found that stress was significantly related to a lack of institutional supports and perceived academic progress for first but not continuing-generation students and individual reflective coping explained the relation between stress and perceived academic goal progress for both first-and continuing-generation college students (Garriot & Nisles, 2018). The findings of Garriot and Nisles (2018) add support to the findings of Uretsky et

al. (2019) by emphasizing the interaction between both individual student and school-level factors to facilitate student success.

Two other studies explored specific approaches to providing institutional supports for students. Trimble et al. (2017) examined the effectiveness of math and English transition courses with added supports through the At Home in College program in New York City by comparing the difference in student outcomes between cohorts of students in schools that continuously implemented the transition program during a given timeframe to the difference in outcomes between cohorts that had not yet implemented the program and found that implementing transition courses may have unintended consequences of removing students from alternative courses that could better facilitate student success, and if the alternative courses were already rigorous, well-taught, and packed with content that was useful for college success, the transformative impact of a transition course may be limited. The findings of Trimble et al. (2017) appear to suggest that institutional efforts to add further supports to foster student success must be well-considered enough to better determine if such additional supports are really needed if existing programs are already providing adequate support or there could be unintended consequences. One other study regarding institutional supports focused research on the impact of place-based scholarships for promoting student success and post-secondary attainment and determined that place-based scholarships did help to achieve these objectives by more adequately addressing the primarily local nature of college going and the complex set of challenges that cross educational and workforce sectors create with better coherency (Iriti et al., 2018). The findings of Iriti et al. (2018) lend support to the findings of Trimble et al. (2017) regarding the need to carefully consider what types of institutional supports are most needed to best facilitate

student success as well as pointing to the value of place-based scholarships that recognize the primarily local nature of college going.

Other researchers focused on more individualized variables that may impact student success in the current literature. Kahu and Nelson (2018) explored the interaction between student success, retention, and engagement among higher education students and determined that lower completion rates among non-traditional students could be explained not by focusing on the first year, as it was limited to depicting differences between students and institutions as both transient and temporal, but by utilizing a cultural lens instead to introduce the educational interface as a metaphor for the individual psychosocial space within which institutional and student factors combine and student engagement in learning occurs. These researchers further determined that doing so more effectively explained the complex interactions between students and institutions and how those interactions influenced engagement by highlighting four specific psychosocial constructs of self-efficacy, emotions, belonging, and well-being that were critical mechanisms for mediating the interactions between student and institutional characteristics and student engagement and success to explain why some students with demographic characteristics associated with lower completion rates were retained and went on to successfully complete their studies, while similar others did not. The findings of Kahu and Nelson (2018) add support to the findings of Uretsky et al. (2019) of the interaction between both student and school-level factors to facilitate student success, and that student academic performance was a greater predictor of student success than socio-demographic variables by indicating that other individual variables such as self-efficacy, emotions, belonging, and well-being were also more significant than socio-demographic variables. However, Landorf et al. (2018) researched global learning in higher education to promote inclusion and student success and determined that global learning that

encompassed a wide variety of modes and experiences such as in-person, online, and in co-curricular activities at home and abroad better addressed socio-demographic diversity issues and student engagement to better facilitate student success. The findings of Landorf et al. (2018) lend support to the findings of Tamaro et al. (2020) and Perin and Holschuh (2019) that socio-demographic variables are a significant factor in student success. Implications from this discrepancy regarding the significance of socio-demographic variables in student success may be explained by the recognition that all individual variables are significant and must be well-considered to provide the best possible supports that are as individualized as possible to foster student success.

Adult learners were the specific focus of research regarding student success in two other studies. Kara et al. (2019) completed a literature review on the topic of challenges faced by adult learners in online distance education and determined that adult learners had challenges from internal, external, and program-related factors that were interrelated, and these challenges experienced by adult learners varied depending on their age, gender, knowledge, skills, and context in which they study. The findings of Kara et al. (2019) add further support to the consensus that both individual student and school-level factors interacted together to impact student success (Garriot & Nisles, 2018; Kahu & Nelson, 2018; Uretsky et al., 2019). Other researchers who conducted a study of female adult learners who struggled with building literacy and writing skills using a narrative inquiry approach found that their success as students was related to developing more positive identities about themselves as students (Jack-Malik & Kuhnke, 2020). Jack-Malik and Kuhnke (2020) concur directly with Kahu and Nelson (2018) regarding the significance of individual internal student variables of identity, such as self-efficacy, emotions, belonging, and well-being on student success.

2.4.6.2 Developmental Education

Multiple studies in the current literature reflected recent political interest in improving developmental education and specific challenges that developmental education programs would need to address more adequately to foster student success. Schak et al. (2017) researched developmental education in conjunction with the U.S. Department of Education and determined that policymakers and stakeholders were calling for "higher college completion rates" that were causing developmental education programs across the country to reevaluate these programs due to low course and degree completion rates. Another related study that researched developmental education under the umbrella of the U.S. Department of Education established that there had been a shift to limit the amount of time a student can enroll in developmental courses that were spearheaded by the creation of state laws or policies that manifested into appropriations formulas to only fund students' developmental coursework for a limited number of credit hours (McCann & English, 2017). This study further established that research supported the idea that community college students who successfully completed their developmental sequence would go on to graduate or transfer to a four-year institution at comparable rates to students who began at college level. However, Boatman and Long (2018) examined the impact of developmental education courses on college students using a regression discontinuity design to provide causal estimates of the effects of placement in different levels of developmental courses on short, intermediate, and long-term outcomes at both two and four-year colleges and found that developmental education remediation had negative effects for students on the margin of needing one developmental course, but with students with lower levels of academic preparation, the effects of developmental remediation were positive overall. The findings of Boatman and Long (2018) provide additional support for previous consensus in this literature review that academic

preparedness was a significant factor in student success (Barhoum, 2017; Daniel, 2020; Perin & Holschuh, 2019; Woods et al., 2018), and while these findings do not necessarily contradict the specific findings of McCann and English (2017) regarding the benefits of developmental education for community colleges students, they do indicate that developmental courses can help or hinder student success depending on their levels of previous academic preparedness. The paired findings of Schak et al. (2017) and McCann and English (2017) specifically concur on behalf of the U.S. Department of Education that there was growing political interest in improving developmental education. Implications from these paired findings appear to suggest that the approach to limit time and funding for developmental education may be short-sighted, particularly for community college students, if the ultimate goal is to improve completion rates. However, the key qualifier appears to be if these students are able to successfully complete their developmental education courses first, which invites greater discussion as to what specific barriers there may be for students being able to successfully complete these developmental education courses before they are able to even begin to focus on degree completion.

These barriers to successful completion among developmental education students were examined further in the literature by other researchers. Bailey et al. (2016) researched developmental education and determined that a significant barrier that developmental education students may face to successful completion was that they could possibly spend an entire academic year or more in classes that were non-credit bearing and not moving toward their initial academic or professional goals. Another study that assessed developmental education concurred with these findings by determining that while it was important for students to receive the skills necessary to be successful in college-level courses, the requirements of a developmental course sequence could necessitate a student spending a substantial amount of time and money in classes

where credits were not being earned, while other resources, including financial aid, were being consumed (Goldwasser et al., 2017). The findings of Bailey et al. (2016) and Goldwasser et al. (2017) emphasize the remedial nature of developmental education that can significantly drain the resources of students seeking to move forward with their degree completion that may often also drain their motivation to want to even complete these developmental education courses to continue at all and help to explain why low developmental course and degree completion for these students has become such a significant problem to gain political interest and a desire for improvement.

A few more studies examined additional barriers that developmental education students may face to successful completion. Rosenbaum et al. (2017) conducted multiple longitudinal studies to evaluate the shortcomings and successes of developmental education in community colleges and investigate how these institutions can promote alternatives to bachelor's degrees to increase graduation rates and improve job payoffs and found that associate degrees and college certificates can improve employment outcomes, earnings, autonomy, career opportunities, and job satisfaction more than those who enroll but do not complete credentials, and associate degree credentials can be completed at community colleges in less time than bachelor's degrees, making them an affordable option for many low-income students. However, when community colleges overemphasize bachelor's degrees, they miss the vocational benefits of associate degrees and tend to funnel resources into remedial developmental education programs instead of trying to get struggling students on track for a bachelor's degree, which can create unrealistic expectations and cause struggling students to drop out before completing any degree. Douglas and Attewell (2017) also examined developmental education as related to future employment and determined that skills used in workplaces indicated that very small proportions of educated workers ever

used “school math,” suggesting that emphasizing mathematics in developmental education may be misdirected. The findings of both Rosenbaum et al. (2017) and Douglas and Attewell (2017) concur that there is a disconnect that may occur in developmental education with helping struggling students to develop vocational skills that could help them to be more successful in future employment, with Rosenbaum et al. (2017) directly contributing this disconnect to being a significant factor that may result in low completion rates for developmental education students.

Other researchers explored developmental education barriers to completion in the areas of literacy and language within community colleges and determined that new political interest in many states to improve developmental education was giving students greater access to college-level English courses by accelerating students' progress through (or around) developmental courses to place these students soon after enrollment into disciplinary or professional areas, causing community college faculty across the curriculum to face increasingly pressing questions regarding how to best address students' language and literacy needs while still supporting students' timely progress toward completion, with developmental English faculty questioning if they should shift their instruction now to require fewer pre-requisites or to offer co-requisite courses to be taught alongside college-level English and what the role of ESL courses should be in this new environment (Bunch et al., 2019). These same researchers conducted a second study that more specifically examined developmental education literacy and language challenges at a community college in California to help boost completion rates through analyzing program documents and interviewing eight faculty members teaching these courses and found that despite seeking to focus on disciplinary dimensions of language and literacy, course outlines and instructors tended instead to emphasize general reading and writing competencies, critical thinking, and problem-solving, and instructors underscored challenges common to English-

dominant and language-minority students, that rather than literacy and language, the main challenges were problems with students' study skills, critical thinking, problem-solving, or time committed to their studies (Bunch et al., 2020). The findings of both of these studies paired together indicate that literacy and language barriers can significantly hinder student success and lower completion rates among developmental education students. However, the Bunch et al. (2020) study revealed that at least in one community college, it was not ultimately literacy and language barriers that were the most significant, but other individual student variables such as study skills, critical thinking, problem-solving, or time committed to their studies that hindered student success and lowered completion rates, adding support to previous consensus that individual student variables impacted student success (Garriot & Nisle, 2018; Jack-Malik & Kuhnke, 2020; Kahu & Nelson, 2018; Kara et al., 2019; Uretsky et al., 2019).

In a comparative study conducted by Mourad and Hong (2017) that was most similar to the focus of the proposed study, two groups of freshman students who tested below level in college reading were compared of those who took a developmental reading course and college level courses in their first semester and those who took only college level courses by utilizing propensity score matching, with results indicating that enrollment in developmental reading was not a significant predictor of success in college level courses or completion rates when controlling for other variables. However, these researchers also found that African Americans, males, young students who did not receive Pell grants, and older students who received Pell grants were significantly less likely to succeed in college level courses without concurrently enrolling in developmental reading. The findings of Mourad and Hong (2017) indicate that concurrently enrolling in developmental reading with college level courses among freshman students was not a significant factor in student success overall. However, for specific socio-

demographic groups, concurrently enrolling in developmental reading was a significant factor, adding further support for the previous consensus that socio-demographic variables were a significant factor in student success (Landorf et al., 2018; Perin & Holschuh, 2019; Tamaro et al., 2020).

2.4.6.3 Section Summary

Broad consensus was found in the current literature that both recent high school graduates and adult learners may experience significant factors that can inhibit their success in college such as being academically unprepared, a lack of needed institutional supports, a lack of engagement or persistence, and other individual or socio-demographic variables (Bahoum, 2017; Daniel, 2020; Garriot & Nisle, 2018; Iriti et al., 2018; Jack-Malik & Kuhnke, 2020; Kahu & Nelson, 2018; Kara et al., 2019; Landorf et al., 2018; Perin & Holschuh, 2019; Trimble et al., 2017; Uretsky et al., 2019; Woods et al., 2018). Implications were discussed regarding the need to more accurately assess college readiness among high school students. Implications were also discussed regarding the significance of socio-demographic variables compared with other individual student variables and the need to choose institutional supports that were well-considered and as individualized as possible to best foster student success. Further specific consensus was also found that both individual student and school-level factors may interact together to help or hinder student success (Garriot & Nisles, 2018; Kahu & Nelson, 2018; Kara et al., 2019; Uretsky et al., 2019).

Broad consensus was also found that despite recent political interest to improve developmental education to better foster student success, there were still many issues that needed to be better addressed such as developmental classes being non-credit bearing yet still consuming a large amount of time and resources, low completion rates, a disconnect with a more practical

emphasis on vocational skills, and other individual or socio-demographic variables, requiring the need for further developmental education redesign and reform (Bailey et al., 2016; Boatman & Long, 2018; Bunch et al., 2019, 2020; Douglas & Attewell, 2017; Goldwasser et al., 2017; McCann & English, 2017; Rosenbaum et al., 2017; Schack et al., 2017). The findings of Boatman and Long (2018) provided additional support for previous consensus that academic preparedness was a significant factor in student success (Barhoum, 2017; Daniel, 2020; Perin & Holschuh, 2019; Woods et al., 2018). Further specific support was found from the results of the Bunch et al. (2020) study as well to previous consensus that individual student variables impacted student success (Garriot & Nisle, 2018; Jack-Malik & Kuhnke, 2020; Kahu & Nelson, 2018; Kara et al., 2019; Uretsky et al., 2019). In one comparative study that was found in the literature that was most similar to the focus of the proposed study, further specific support was also found that socio-demographic variables were a significant factor in student success (Mourad & Hong, 2017) to previous consensus (Landorf et al., 2018; Perin & Holschuh, 2019; Tamaro et al., 2020). The next main topic in this literature review of redesigning and reforming developmental education will closely examine recent efforts to better address the main concerns that were noted regarding developmental education of classes being non-credit bearing yet still consuming a large amount of time and resources, low completion rates, a disconnect with a more practical emphasis on vocational skills, and other individual or socio-demographic variables and how these redesign and reform efforts impact student success as related to the focus of the proposed study.

2.4.7 Redesigning and Reforming Developmental Education

Efforts to redesign and reform developmental education programs through accelerated learning that may also include components of co-requisite or integrated methods has been the

predominant approach to better address developmental education being non-credit bearing yet still consuming a large amount of time and resources and has had positive outcomes for students (Bickerstaff & Raufman, 2017; Ernst, 2017; Parkin, 2019; Raushwerk, 2017; Rush, 2020; Rutschow et al., 2019). The state of Florida was spotlighted in the current literature as taking it one step further in their developmental education reform efforts by making it optional for students to take any developmental courses at all, and this approach has been particularly effective in helping to better address socio-demographic disparities (Mokher et al., 2020; Nix et al., 2019; Park et al., 2018; Park-Gaghan et al., 2020; Woods et al., 2017). Other redesign and reform approaches have included sustainable development, the guided pathways model, greater institutional and community support, an emphasis on self-pacing, or being multi-modal (Flink, 2017; Jenkins et al., 2017; Saidy, 2018; Sawarynski et al., 2019; Treschel et al., 2018; Weiss & Hedlam, 2019; Xu et al., 2018). Fostering student engagement as part of developmental education redesign and reform is another critical factor for increasing student retention and better addressing low completion rates (Burke, 2019; Cipriano et al., 2019; Gares, et al., 2020; Rauchwerk, 2017; Rutschow et al., 2019).

2.4.7.1 Accelerated Learning

Multiple studies explored efforts to accelerate learning for developmental education students. Rauchwerk (2017) completed a narrative review of the Speed School international accelerated developmental learning program and found that the key components of knowledge acquisition, relationships, student engagement, testing out ideas, and skills building were all identified as positive outcomes from this program that facilitated greater academic success and lifelong learning. Another review of accelerated learning that examined course compression as a means of helping students progress through the developmental sequence found that course

acceleration had a significantly positive effect on the completion of the developmental sequence by encouraging interactive teaching, increasing time on task to reinforce learning, and promoting student engagement through a student-centered learning environment (Rutschow et al., 2019). The findings of both of these studies concur that accelerated learning facilitated more positive outcomes for developmental education students, with both studies also recognizing increased student engagement as one of these positive outcomes. Other researchers specifically focused on accelerated learning in English or subject-related developmental education courses. Ernst (2017) conducted a quantitative study to analyze an Accelerated Learning Program (ALP) at a Midwest college, with results indicating that students in this program had substantially better outcomes in the first and second college-level English courses and were more likely to attempt other college-level courses in the year following their participation, with the ALP also determined to be a more cost-effective pathway than the traditional developmental English course sequence. Parkin (2019) examined the academic outcomes of Australian students' course taking patterns and perceptions of developmental literacy accelerated programs with integrated reading and writing courses and also found that these accelerated programs had positive effects on the long and short-term academic goals of developmental education students. Ernst (2017) and Parkin (2019) both concur that students specifically in developmental English or subject-related courses also had more positive outcomes through accelerate learning. Rush (2020) explored the experiences of administrators and faculty who were implementing developmental education redesign at Mississippi community colleges by conducting a qualitative study of 23 participants that represented 13 of the 15 community colleges in Mississippi and found that developmental education redesign in Mississippi community colleges was intentional and meticulously planned with students in mind, effectiveness was being assessed, and changes were being made as needed

by utilizing such strategies as Complete College America and accelerated learning with a co-requisite approach. However, Bickerstaff and Raufman (2017) explored the perceptions and experiences of faculty members in the midst of statewide developmental education reform efforts at community colleges in Virginia and North Carolina to integrate developmental reading and writing courses using interview and focus group data from 161 faculty and administrators in both states as well as three detailed case studies of faculty teaching newly integrated courses and found that while instructors had a generally positive impression of integrating the two disciplines, implementing these new courses was not without challenges such as a lack of a clear integrated framework and concerns that they could not cover all of the content and activities from the previous courses under this accelerated course structure and were not able to provide students the literacy skills they needed to be successful. These findings from a faculty perspective regarding accelerated learning in community colleges suggest that despite a focus on student success, there still may be issues with being able to thoroughly cover all of the content if a clear integrated framework is not created prior to implementation.

2.4.7.2 Optional Developmental Education

Florida was specifically spotlighted in the current literature as taking it one step further in their redesign and reform efforts by making developmental education courses optional for students. Woods et al. (2017) established that in 2013, the state of Florida passed Senate Bill 1720 which redesigned developmental coursework and placement policies across the Florida College System to lift developmental education placement exam testing and course enrollment requirements for certain exempt students, irrespective of prior academic preparation or achievement. These researchers also conducted a study that focused on these exempt student within community colleges who had the option to bypass developmental education who were

also still academically underprepared by analyzing statewide student-level data utilizing logistic regression techniques, with results indicating that the level of previous academic preparation was related to students' course enrollment and gateway English course success, and students who were slightly underprepared in reading or writing were more likely than severely underprepared students to choose to enroll in the gateway English class, relative to a developmental reading or writing course, with slightly underprepared students more likely to pass English than severely underprepared students. The findings from this first study regarding developmental education redesign and reform efforts in Florida add support to previous findings in this literature review pertaining to the significance of academic preparedness in student success (Barhoum, 2017; Boatman & Long, 2018; Daniel, 2020; Perin & Holschuh, 2019; Woods et al., 2018) and appear to also indicate that students will accurately recognize and still choose to take developmental education courses if they need to when given the option. Park et al. (2018) examined developmental education reform in Florida by conducting a study to determine whether there was any relationship between the removal of developmental education requirements and the achievement gap between White students and underrepresented minority students by employing a difference-in-differences model that estimated the relationships between students' race/ethnicity and their success in gateway courses as specific to English Composition 1 and Intermediate Algebra with data collected from the Florida Education Data Warehouse of Black, White, and Hispanic students across six cohorts of students among 28 colleges, with results indicating that now that students have the option to bypass developmental courses, Black and Hispanic students were enrolling in gateway courses at higher rates compared with White students, and although course-based passing rates had declined overall, the cohort-based passing rates for Black and Hispanic students have increased at rates higher than those of White students.

A similar study that used an interrupted time series design to introductory college-level courses enrollment and passing rates in English and math for three cohorts of college students pre-reform and three cohorts post-reform found that cohorts after the reform were more likely to enroll and pass introductory college-level courses in their first year of college, indicating that the reform may help to accelerate student success in college, and Black and Hispanic students experienced even greater gains in passing rates than White students, effectively narrowing the racial and ethnic achievement gap (Park-Gaghan et al., 2020). Both Park et al. (2018) and Park-Gaghan et al. (2020) add further support to previous consensus that socio-demographic variables are a significant factor in student success (Landorf et al., 2018; Mourad & Hong, 2017; Perin & Holschuh, 2019; Tamaro et al., 2020) and further indicate that giving students a choice to take developmental education courses increased overall student success and completion rates during their first year of college, particularly for minority students.

Two other studies focused on the perspectives of administration in regard to these developmental education redesign and reform efforts in Florida. Mokher et al. (2020) explored developmental education reform in Florida by gathering statewide survey data to examine administrators' perceptions of the use and effectiveness of accountability metrics and methods to identify solutions to improve student outcomes and found that institutions most commonly used accountability data to track their own performance but found it less effective for making student comparisons across colleges, and the greatest challenges in reviewing and responding to data were finding resources to understand underlying problems affecting student outcomes and implement solutions. The findings of Mokher et al. (2020) appear to suggest that there may be a disconnect regarding administrative perspectives of student outcomes because of the accountability metrics and methods being utilized, further implying that redesign and reform

efforts may be needed in this specific area. Another study that explored administrative and staff perspectives of Florida developmental education redesign and reform through an embedded case study of ten Florida college system institutions with qualitative data that was gathered between 2014 and 2018 from 544 college presidents, administrators, faculty, and staff through 92 focus groups and eight interviews found that campus administration and staff were concerned that this reform prioritized efficiency over equality in the pursuit of cost savings, and participants expressed frustration that these reforms accelerated developmental education coursework to an unmanageable pace and ignored the presence of a digital divide. These opinions of participants were further determined to have improved in the four years following implementation, but some concerns persisted (Nix et al., 2019). The findings of Nix et al. (2019) concur with the findings of Bickerstaff and Raufman (2017) that accelerated learning to improve developmental education outcomes for students may place an unrealistic burden on administration and staff to keep up with this new pace, implying that specific attention should be given to this area as well to provide more support and resources in further redesign and reform.

2.4.7.3 Other Redesign and Reform Efforts

Multiple studies also focused on other efforts to redesign and reform developmental education. Trechshel et al. (2018) examined reforming developmental education within the context of facilitating and mainstreaming sustainable development among academic staff at a Swiss university and determined that combining a top-down and bottom-up policy to increase motivation by prioritizing and sequencing target groups to find the link between their academic discipline and sustainable development by offering support, resources, and professional training would help them to move more towards a competence-oriented form of teaching that would improve educational outcomes. The findings of Trechsel et al. (2018) recognize the need for

academic staff to be provided with more support and resources to facilitate developmental education reform as previously noted by Bickerstaff and Raufman (2017) and Nix et al. (2019) specific to accelerated learning. Jenkins et al. (2017) examined redesigning developmental education utilizing the guided pathways model that clarifies pathways to program completion, career advancement, and further education among 30 colleges in the American Association of Community Colleges (AACC) by conducting telephone interviews with project leaders to discuss their self-assessments of the extent to which they were implementing elements of the guided pathways model and by also conducting in-depth interviews and focus groups with faculty, advisors, and students during site visits at six of the colleges and determined that virtually all of the AACC Pathways colleges were experimenting with this new approach to developmental education, but most had not implemented these reforms at scale (Jenkins et al., 2017). Another study that analyzed the impact of the Embark scholarly concentration program to combine traditional learning with vocational skills and individualized just-in-time components that enabled student access to information and feedback specific to their coursework found that this program was effective for facilitating academic student success and could also identify additional resources needed by students (Sawarynski et al., 2019). Both the guided pathways model as described by Jenkins et al. (2017) and the Embark program described by Sawarynski et al. (2019) appear to seek to better address concerns that were previously recognized in this literature review of there being a disconnect between developmental education and a more practical emphasis on vocational skills (Douglas & Attewell, 2017; Rosenbaum et al., 2017), yet Jenkins et al. (2017) determined that more efforts were needed to implement the guided pathways model to scale, while Sawarynski et al. (2019) determined that the Embark program had been successful, particularly for helping to identify additional resources that students needed.

Other researchers examined the socio-demographic outcomes of developmental education reform within community colleges in more depth. One study that explored developmental education reforms across race or ethnicity, socioeconomic status, gender, and level of developmental need among White, Black, and Latino students in a California *community college* district found that more reform efforts were needed to fully address socio-demographic disparities (Braithwaite & Edgecombe, 2018). Another qualitative study that evaluated the change process used to implement the Virginia community college system developmental math redesign through surveying faculty found that participants reported that there were effective change practices at their institutions during the redesign, but there were differences in how faculty perceived the effectiveness of the change processes within different demographic characteristics (Adkins, 2017). Both of these studies add further support to previous consensus that socio-demographic variables are a significant factor in student success (Landorf et al., 2018; Mourad & Hong, 2017; Park et al., 2018; Park-Gaghan et al., 2020; Perin & Holschuh, 2019; Tamaro et al., 2020).

Specific to developmental math redesign and reform, Xu et al. (2018) analyzed the causal effects of a first-year STEM learning communities program on both cognitive and non-cognitive outcomes at a large public university with regression discontinuity analysis among students whose math SAT scores were below threshold, with results indicating that program participation increased the academic performance and sense of belonging for students and provided compelling evidence that learning communities can support at-risk populations when implemented with a high level of fidelity. The findings of Xu et al. (2018) reveal that developmental education reform efforts were effective for this program by better addressing a lack of institutional or community supports that was previously recognized as being a significant

factor that may hinder student success (Garriot & Nisles, 2018; Iriti et al., 2018; Trimble et al., 2017). Rector (2017) conducted a qualitative case study to analyze the redesign of developmental math courses at a community college as a math bridge program by gathering interview data from developmental education students, advisors, and other key staff members and found that individual factors were more significant than any positive impact of this redesign on student success. The findings of Rector (2017) add support to previous consensus that individual student variables impacted student success (Bunch et al., 2020; Garriot & Nisle, 2018; Jack-Malik & Kuhnke, 2020; Kahu & Nelson, 2018; Kara et al., 2019; Uretsky et al., 2019), and both individual student and school-level factors may interact together to help or hinder student success (Garriot & Nisles, 2018; Kahu & Nelson, 2018; Kara et al., 2019; Uretsky et al., 2019). Another study that evaluated the redesign of developmental math courses in community colleges with a modularized, computer-assisted, self-paced approach to developmental math compared with a more traditional direct instruction course alternative among a random sample of 1,403 student participants found that although this redesigned program was well implemented, there was no evidence that this approach was superior to the traditional math class (Weiss & Hedlam, 2019). Both the Rector (2017) and Weiss and Hedlam (2019) studies indicate that outcomes were not always as successful as intended in developmental math redesign efforts.

Specific to English developmental education courses or related subject areas, Flink (2017) explored redesigning developmental education to adapt self-selected reading practices for developmental reading courses among adult learners and determined that reading comprehension and fluency issues were the most significant challenges facing these learners in community colleges, and self-selected reading allowed for increased attention to the practice of reading within a supportive setting. The findings of Flink (2017) concur with the previous findings of Xu

et al. (2018) regarding the significance and effectiveness of more adequately providing institutional or community supports to foster student success. Saidy (2018) examined utilizing the multi-modal composing model to help students in developmental English classes to strengthen their writing skills within community colleges and determined that this model was effective for addressing the transition from high school to college writing because this model encouraged transitioning writers to extend beyond standardized genres and formulas learned in high school and to see composing as multi-modal, complex, and audience-aware. Both Flink (2017) and Saidy (2018) provide additional insight to better understand what specific types of developmental education redesign and reform efforts may directly impact student success for those taking developmental English or related subject areas in community colleges as most pertinent to the focus of the proposed study.

2.4.7.4 Student Engagement and Individual Student Variables

Other researchers focused on the topic of student engagement and individual student variables in their studies that could further facilitate developmental education redesign and reform efforts. A literature review on the social aspect of higher education revealed findings indicating that student retention is critical to higher education institutions, yet very complex and difficult to predict, but student engagement during the higher education experience led to higher student retention rates and increased institutional commitment (Burke, 2019). Although not as specific to developmental education, implications from these findings suggest that fostering student engagement for all higher education students is a critical factor for increasing student retention and completion rates while also lending support specifically to the previous findings of Kahu and Nelson (2018) that student engagement was directly related to student retention and overall success. Cipriano et al. (2019) conducted a study of developmental education pathways

for students at risk for academic failure by utilizing longitudinal data from a randomized control trial of 318 participants and found that student outcomes could be improved by increasing student engagement through social and emotional learning, providing further insight as to how student engagement could be increased among developmental education students. Gares et al. (2020) explored the transition of faculty and students at a college to remote learning during COVID-19 and found that student engagement could be increased by strong and supportive student-instructor relationships, also providing specific insight into how student engagement could be increased and adding support to previous consensus regarding the significance of institutional or community supports in fostering student success as part of developmental education redesign and reform efforts (Flink, 2017; Xu et al., 2018). All of these studies regarding student engagement also add support to the specific findings of Rauchwerk (2017) and Rutschow et al. (2019) that increased student engagement was one of the positive outcomes of accelerated learning for developmental education students that facilitated student success.

A few additional studies explored other individual student variables in the literature. One study that analyzed a proactive advising model for a college transition program called "mid-semester grade checks" to promote student academic self-efficacy among first-generation, low-income, and underrepresented minority students from data comprised of longitudinal interviews with 70 participants found that these grade checks promoted student individual self-efficacy through reflection and self-assessment, emotional and interpersonal support, and proactive planning and guidance (Kitchen et al., 2020). The findings of Kitchen et al. (2020) suggest that self-efficacy is also a significant factor in student success, particularly among first-generation, low-income, and underrepresented minority students, adding further support to previous consensus that socio-demographic variables are a significant factor in student success. Rocconi

et al. (2020) examined the relationship between student success and individual person-environment fit among college students, with findings indicating that person-environment fit was not significantly related to either perceived learning gains or overall satisfaction with their college experience. Implications from these findings may suggest that this particular individual student variable of person-environment fit is not as significant as other individual student variables, and adequate institutional or community supports may moderate the impact of person-environment fit on student success, but more research is needed to better understand these interactions. Oyserman et al. (2018) explored the perceived difficulty of academic coursework among a sample of 591 college students by guiding participants' attention toward either a difficulty-as-importance or a difficulty-as-impossibility mindset and found that participants guided toward a difficulty-as-importance mindset performed better on difficult academic tasks than participants guided toward a difficulty-as-impossibility mindset whether they had more school-focused possible identities and supports or not. Oyserman et al. (2018) indicate that individual student attitudes specific to the perceived difficulty of academic coursework is a significant factor in student success that is even greater than whether the student has positive school-focused identities or supports. However, these findings appear to be contradictory because students who were supported by being guided towards believing that academic tasks were possible to complete were more successful than students who were not supported in this way. These findings also conflict with the greater consensus in this literature review that institutional or community supports (or a lack of these supports) was a significant factor in student success.

2.4.7.5 Section Summary

The consensus was found that efforts to redesign and reform developmental education programs through accelerated learning have had positive outcomes for students (Bickerstaff & Raufman, 2017; Ernst, 2017; Parkin, 2019; Raushwerk, 2017; Rush, 2020; Rutschow et al., 2019). However, implications were discussed regarding the possible need for additional supports for administrative and academic staff also to be able to keep up with the pace of accelerated learning. Consensus was found as well that Florida chose to make developmental education courses optional for students in their developmental education reform efforts (Mokher et al., 2020; Nix et al., 2019; Park et al., 2018; Park-Gaghan et al., 2020; Woods et al., 2017), with the findings of Park et al. (2018) and Park-Gaghan et al. (2020) adding further support to previous consensus that socio-demographic variables were a significant factor in student success (Landorf et al., 2018; Mourad & Hong, 2017; Perin & Holschuh, 2019; Tamaro et al., 2020).

Further consensus was also found that other developmental education redesign and reform approaches, such as scholarly concentration and greater institutional and community support, could be effective in improving student outcomes (Sawarynski et al., 2019; Xu et al., 2018). Specific to developmental English courses and related subject areas, the accelerated, self-paced, and multi-modal redesign approaches were found to be effective, but academic preparedness was still recognized as being a significant factor in student success (Ernst, 2017; Flink, 2017; Parkin, 2019; Saidy, 2018; Woods et al., 2017). Fostering student engagement as part of developmental education redesign and reform was found to be another critical factor for increasing student retention and better addressing low completion rates (Burke, 2019; Cipriano et al., 2019; Gares et al., 2020; Rauchwerk, 2017; Rutschow et al., 2019).

Additional support through the findings of Rector (2017) and Kitchen et al. (2020) was found to previous consensus that individual student variables impacted student success (Bunch et al., 2020; Garriot & Nisle, 2018; Jack-Malik & Kuhnke, 2020; Kahu & Nelson, 2018; Kara et al., 2019; Uretsky et al., 2019), with both individual student and school-level factors that may interact together to help or hinder student success (Garriot & Nisles, 2018; Kahu & Nelson, 2018; Kara et al., 2019; Uretsky et al., 2019). Additional support was also found through the findings of Braithwaite and Edgecombe (2018), Adkins (2017), and Kitchen et al. (2020) to previous consensus regarding the significance of socio-demographic variables in student success. The next main section in this literature review will focus specifically on Texas developmental education and community colleges as most related to the purpose of the proposed study to better understand what redesign and reform efforts or other significant factors may be the same or may differ that impact developmental education and student success in community colleges within this state and to further establish the gap in the existing literature that the proposed study intends to help fill.

2.4.8 Texas Developmental Education and Community Colleges

Texas has also sought to redesign and reform developmental education in a variety of ways (Texas Higher Education Coordinating Board, 2014; U.S. 85th Texas Legislature, Office of External Relations, 2017; Valentine et al., 2017). However, this developmental education redesign and reform efforts have had mixed outcomes regarding better addressing student completion rates and academic gains, with challenges that were also recognized in successful implementation (Abraham et al., 2018; Booth et al., 2019; Bohlig et al., 2018; Daughtery et al., 2018; Weisburst et al., 2016). A focus on community colleges pointed to enrolling full-time and other diverse individual or socio-demographic variables as significant factors in educational

outcomes for students (Center for Community College Student Engagement, 2017; Jabbar et al., 2019; Paulson & Overschelde, 2019; Zottarelli et al., 2020).

2.4.8.1 Overview

Texas developmental education redesign and reform efforts were recognized in the literature as having their beginnings in 2003 when the 78th Texas Legislature enacted the Texas Success Initiative to ensure that college students have reading, writing, and math skills they need to do college-level work and with the institution of this new policy, colleges began to consider the additional options available to students in development courses while still providing sound instructional practices (The U.S. 85th Texas Legislature, Office of External Relations, 2017). Although there were a variety of co-requisite models, the focus of these models was not necessarily on accelerated learning (The U.S. 85th Texas Legislature, Office of External Relations, 2017). In 2014, it was later decided that according to Texas state statute, an institution of higher education shall assess the academic skills of each entering undergraduate student to determine the student's readiness to enroll in freshman-level academic coursework**,** and by fall 2017, Texas would significantly improve the success of underprepared students by addressing their individualized needs through reliable diagnostic assessment, comprehensive support services, and non-traditional interventions, to include modular, mainstreaming, non-course competency-based, technologically based, and integrated instructional models (Texas Higher Education Coordinating Board, 2014)**.** However, despite the total amount appropriated to developmental education increasing in Texas from 2007 to 2017, spending was still determined to have decreased slightly overall as a percentage of total higher education expenditures (Valentine et al., 2017). Indications from these developmental education redesign and reform efforts in Texas emphasize that their approach would be to focus on individualized needs through

reliable diagnostic assessment, comprehensive support services, and non-traditional interventions, to include modular, mainstreaming, non-course competency-based, technologically based, co-requisite, and integrated instructional models, without necessarily focusing on accelerated learning. Therefore, this approach to developmental education redesign and reform differs somewhat from previous consensus in this literature review that efforts to redesign and reform developmental education programs had emphasized accelerated learning as the predominant approach that may also include components of co-requisite or integrated models (Bickerstaff & Raufman, 2017; Ernst, 2017; Parkin, 2019; Raushwerk, 2017; Rush, 2020; Rutschow et al., 2019) that was also found to have had positive outcomes for students overall. However, mainstreaming suggests support for the approach of the state of Florida to make developmental education optional for students (Mokher et al., 2020; Nix et al., 2019; Park et al., 2018; Park-Gaghan et al., 2020; Woods et al., 2017), and comprehensive support services (Flink, 2017; Xu et al. 2018), as well as modular or technology-based approaches (Saidy, 2018; Weiss & Hedlam, 2019) to previous noted redesign and reform efforts.

2.4.8.2 Mixed Outcomes and Diversity

Specific factors that may impact Texas community college students were explored in the current literature. Researchers who conducted a qualitative study to compare the academic outcomes of full-time vs. part-time students from transcript data among 28 community colleges in Texas found that always-full-time students have consistently higher levels of engagement than always-part-time students, and always-full-time students were more likely to complete gateway courses, persist, and earn credentials than always-part-time students (Center for Community College Student Engagement, 2017). Implications suggest from these findings that full-time community college students are more engaged and more likely to persist to gateway courses and

credential completion. Although this study does not distinguish or directly compare developmental education students with traditional students, implications may still further suggest that full or part-time status is a significant factor when seeking to analyze persistence and completion rates among community college students, but more research is needed. A qualitative study that explored transfer-intending community college students' choice sets among two community colleges in Texas from 95 interviews of participating students found that there was significant diversity among these students that impacted their transfer intentions based on socio-demographic variables, geography, and the quality of institution, with the majority being first-generation college-goers, low-income, or students of color (Jabbar et al., 2019). Jabbar et al. (2019) concurs with the findings of the Center for Community College Student Engagement (2017) that individual student variables are a significant factor in student success and decision-making, adding further support to previous consensus in this literature review that individual student variables impacted student success (Bunch et al., 2020; Garriot & Nisle, 2018; Jack-Malik & Kuhnke, 2020; Kahu & Nelson, 2018; Kara et al., 2019; Kitchen et al., 2020; Rector, 2017; Uretsky et al., 2019). Jabbar et al. (2019) also adds support to previous consensus that both individual student and school-level factors may interact together to help or hinder student success (Garriot & Nisles, 2018; Kahu & Nelson, 2018; Kara et al., 2019; Kitchen et al., 2020; Rector, 2017; Uretsky et al., 2019), and socio-demographic variables are a significant factor in student success (Adkins, 2017; Braithwaite & Edgecombe, 2018; Kitchen et al., 2020; Landorf et al., 2018; Mourad & Hong, 2017; Park et al., 2018; Park-Gaghan et al., 2020; Perin & Holschuh, 2019; Tamaro et al., 2020). Zottarelli et al. (2020) conducted a qualitative study to explore changes in community college student basic needs services and programs during COVID-19 by utilizing an online survey method of administrators at Texas community colleges designated as

Hispanic-Serving Institutions, with results indicating an overall decrease in the number of basic needs initiative programs and services at the community colleges during the pandemic, and while specific service provision areas, such as food, childcare, clothing, and training had the greatest decline, programming directed at financial assistance, mental health referrals, student employment, and on-campus physical health services increased. The findings of Zottarelli et al. (2020) also concur with specific consensus for Texas community college students and add additional support to the broader previous consensus that has been established regarding individual student variables, the interaction of individual and school-level factors, and socio-demographic variables all being significant factors in student success.

A specific focus on Texas developmental education in the literature revealed several studies that also examined the outcomes of redesign and reform efforts. Researchers who conducted a qualitative study to examine developmental education programs in Texas had findings indicating that a redesigned curriculum for shortened, self-paced, co-requisite, and blended courses accelerated student success in areas like completion and persistence to credit-level courses, with personal and academic support also being a significant factor in positive student educational outcomes (Booth et al., 2014). The findings of this study point to the effectiveness of several developmental education redesign efforts specific to Texas that were previously noted of courses becoming self-paced, co-requisite, and integrated with comprehensive supports for accelerating student success in the areas of higher completion rates and persistence. However, Bohlig et al. (2018) analyzed the relationship between developmental education status with gateway course completion and degree or certificate completion, controlling for level of entry into the developmental sequence, history of enrollment status, and other student characteristics, by utilizing student-level transcript data from the Center for

Community College Student Engagement in Texas and determined that many studies of the effects of developmental education on completion had found that there was no significant relationship. The findings of Bohlig et al. (2018) appear to conflict with the findings of Booth et al. (2014) by determining that developmental education, even after redesign and reform efforts in Texas, was not really a significant factor in facilitating student success at all as related to course, degree, or certificate completion. Implications may suggest that this conflict could at least be partially explained by the previous consensus that has been established of the significance of individual student variables, the interaction of individual and school-level factors, and socio-demographic variables, but more research is needed.

Two studies specifically focused on developmental math in the literature. Weisburst et al. (2016) conducted a comparative study to compare student outcomes in community colleges in Texas among students who were in developmental math courses with two intervention redesign efforts of shortening the courses and adding a study skills component with students who were in developmental math courses without these interventions and found that students in courses with these interventions were 16% more likely to pass developmental math, 3% more likely to pass a first college-level math course within a year, and 4% more likely to persist to the next college year. These findings add support specific to developmental math to the previous findings of Booth et al. (2014) that shortening the curriculum could be effective in improving student success and completion rates. However, Abraham et al. (2018) conducted a comparative study to compare the college readiness in math of Texas community college students before and after completing and passing a developmental math course with a grade of A, B, or C by analyzing archival data from the Texas Higher Education Coordinating Board and found no significant improvement with respect to math college readiness scores after students completed and passed

the developmental math course. Many possible reasons may help to explain these findings specific to developmental math that have been previously recognized in this literature review of individual student variables, the interaction of individual and school-level factors, socio-demographic variables, and the accuracy and consistency of measuring college readiness itself. It appears that more research is clearly needed again, though, particularly pertaining to the interaction of community college students and developmental education redesign and reform efforts on student success in Texas, where student outcomes have been so mixed.

Two additional studies focused on research to include the specific location of the proposed study and a more aligned focus to the proposed study. Daugherty et al. (2018) conducted a Texas statewide study that included the Southeast Texas Community College, one of the largest community college systems in the state and location of the proposed study, to evaluate the design, implementation, and impact of developmental education co-requisite instructional models that included accelerated learning, academic support service, and extended instructional time and determined there were implementation challenges that centered on a lack of stakeholder buy-in, issues with scheduling and advising, limited instructional preparation and support, and uncertainty around state policy, and further determined that efforts to build buy-in and address challenges were essential to successful implementation. The findings of Daugherty et al. (2018) provide valuable insight specific to the location of the proposed study of implementation challenges that may directly impact the success of developmental education students in their persistence and completion rates, even though developmental English courses were not specifically mentioned. Only one study was found in the existing literature that was aligned most closely with the focus of the proposed study of researchers who compared developmental education student success in Texas community colleges through propensity matching, with

results indicating that there were significantly greater outcomes for students who took non-accelerated separate developmental reading and writing courses compared with students who took an accelerated and integrated course (Paulson & Overschelde, 2019). However, these researchers did not compare developmental education students with traditional students.

2.4.8.3 Section Summary

Consensus was found that developmental education redesign and reform efforts in Texas have sought to individualize student needs through reliable diagnostic assessment, comprehensive support services, and non-traditional interventions to include modular, mainstreaming, non-course competency-based, technologically based, co-requisite, and integrated instructional models, without necessarily focusing on accelerated learning (Texas Higher Education Coordinating Board, 2014; U.S. 85th Texas Legislature, Office of External Relations, 2017; Valentine et al., 2017). Implications were discussed as to how these redesign and reform efforts were the same or different from previous findings in this literature review. The consensus was also found that developmental education redesign and reform efforts have had mixed outcomes regarding better addressing student completion rates and academic gains, with challenges that were also recognized in successful implementation (Abraham et al., 2018; Booth et al., 2019; Bohlig et al., 2018; Daughtery et al., 2018; Weisburst et al., 2016). Implications were discussed regarding how previous broad consensus on the significance of individual student variables, the interaction of individual and school-level factors, and socio-demographic variables may help to explain these mixed outcomes in Texas, with further specific consensus found of the significance of these factors among students in Texas community colleges (Center for Community College Student Engagement, 2017; Jabbar et al., 2019; Zottarelli et al., 2020). Only one study was found that most closely aligned with the focus of the

proposed study that compared Texan developmental education students who were taking courses in the subject areas of reading and writing (Paulson & Overschelde, 2019), and no studies were found that compared community college developmental education students to traditional students who were taking English courses in the state of Texas.

2.5 Summary and Conclusions

Of the first major theme of student success and developmental education, this literature review revealed that both recent high school graduates and adult learners may experience significant factors that can inhibit their success in college, such as being academically unprepared, a lack of needed institutional supports, a lack of engagement or persistence, and other individual or socio-demographic variables (Bahoum, 2017; Daniel, 2020; Garriot & Nisle, 2018; Iriti et al., 2018; Jack-Malik & Kuhnke, 2020; Kahu & Nelson, 2018; Kara et al., 2019; Landorf et al., 2018; Mourad & Hong, 2017; Perin & Holschuh, 2019; Trimble et al., 2017; Uretsky et al., 2019; Woods et al., 2018). Both individual student and school-level factors may interact together to help or hinder student success (Garriot & Nisles, 2018; Kahu & Nelson, 2018; Kara et al., 2019; Uretsky et al., 2019). Despite recent political interest to improve developmental education to better foster student success, there were still many issues that needed to be better addressed, such as developmental classes being non-credit bearing yet still consuming a large amount of time and resources, low completion rates, a disconnect with a more practical emphasis on vocational skills, and other individual or socio-demographic variables, requiring the need for further developmental education redesign and reform (Bailey et al., 2016; Boatman & Long, 2018; Bunch et al., 2019, 2020; Douglas & Attewell, 2017; Goldwasser et al., 2017; McCann & English, 2017; Rosenbaum et al., 2017; Schack et al., 2017).

Regarding the second major theme of what is known in the literature of developmental education redesign and reform, efforts to redesign and reform developmental education programs through accelerated learning that may also include components of co-requisite or integrated methods have been the predominant approach to better address developmental education being non-credit bearing yet still consuming a large amount of time and resources and has had positive outcomes for students (Bickerstaff & Raufman, 2017; Ernst, 2017; Parkin, 2019; Raushwerk, 2017; Rush, 2020; Rutschow et al., 2019). The state of Florida was spotlighted in the current literature as taking it one step further in its developmental education reform efforts by making it optional for students to take any developmental courses at all, and this approach was found to be particularly effective in helping to better address socio-demographic disparities (Mokher et al., 2020; Nix et al., 2019; Park et al., 2018; Park-Gaghan et al., 2020; Woods et al., 2017). Other redesign and reform approaches have included sustainable development, the guided pathways model, greater institutional and community support, an emphasis on self-pacing, or being multi-modal (Flink, 2017; Jenkins et al., 2017; Saidy, 2018; Sawarynski et al., 2019; Treschel et al., 2018; Weiss & Hedlam, 2019; Xu et al., 2018). Fostering student engagement as part of developmental education redesign and reform is another critical factor for increasing student retention and better addressing low completion rates (Burke, 2019; Cipriano et al., 2019; Gares et al., 2020; Rauchwerk, 2017; Rutschow et al., 2019).

Of the third major theme of Texas developmental education and community colleges, this literature review has further revealed that developmental education redesign and reform efforts in Texas have sought to individualize student needs through reliable diagnostic assessment, comprehensive support services, and non-traditional interventions to include modular, mainstreaming, non-course competency-based, technologically based, co-requisite, and

integrated instructional models, without necessarily focusing on accelerated learning (Texas Higher Education Coordinating Board, 2014; U.S. 85th Texas Legislature, Office of External Relations, 2017; Valentine et al., 2017). These developmental education redesign and reform efforts have had mixed outcomes regarding better addressing student completion rates and academic gains, with challenges that were also recognized in successful implementation (Abraham et al., 2018; Booth et al., 2019; Bohlig et al., 2018; Daughtery et al., 2018; Weisburst et al., 2016). The significance of individual student variables, the interaction of individual and school-level factors, and socio-demographic variables were further recognized as impacting student success within Texas community colleges (Center for Community College Student Engagement, 2017; Jabbar et al., 2019; Paulson & Overschelde, 2019; Zottarelli et al., 2020).

Although there is much discussion in the literature regarding the need for developmental education reform, and much discussion in the literature regarding developmental redesign and reform efforts, very little is known in the current literature about how student success rates in these developmental education courses compare to success rates in traditional courses (Mourad & Hong, 2017), and little research is also dedicated to comparing these success rates in community colleges, specifically regarding either comparing developmental education students with traditional students or by comparing developmental education students based on different instructional models such as accelerated, integrated, or co-requisite instructional models in developmental English, and in the state of Texas (Paulson & Overschelde, 2019). This, then, is the gap that will be addressed in the proposed study, as reflected in the purpose and research questions. Chapter 3 will provide details of the method for achieving the purpose of the proposed study and addressing the gap established in this chapter.

Chapter 3 - Methodology

3.1 Introduction

Community college students, and especially nontraditional college students, are frequently placed into remedial learning classes that significantly inhibit their path to graduation. The present study was intended to help address this problem by examining the efficacy of co-requisite English programs relative to students who directly tested into freshman English. The results of this study have the potential help institutions further refine instructional efforts to continue to drive the mission of higher education. Identifying modes of instruction that impact students and are most effective for redesigning developmental English programs are more likely to provide a meaningful learning experience and potentially increase enrollment, success, and completion. The remainder of Chapter 3 outlines the questions, methodology, and design the researcher used to collect and analyze the institutional data received. The justification for the method, design, site, and analysis are also included.

3.2 Purpose Statement

The purpose of this quantitative causal comparative study was to compare the successful course completion and persistence of students who were enrolled in co-requisite, developmental English courses paired with freshman level English to students enrolled in traditional English courses at all campuses of the Southeast Texas Community College. Understanding the impact of co-requisite instructional models, such as the Accelerated Learning Program and non-course-based options, has the potential to transform and equip instructional programs. Having researched-based evidence will provide institutions with data allowing campus and departmental leadership to implement more strategic practices in course offerings and instructional delivery. The independent variable was students' enrollment type being either traditional English or co-

requisite English. The dependent variables were students' academic success and students' persistence through the next academic year. Additional variables of interest were race/ethnicity and gender. The study was conducted at a single, multi-campus urban community college system in the state of Texas. Understanding the impact of a co-requisite instructional approach has the potential to better equip and transform instructional programs.

3.3 Research Questions and Hypotheses

The researcher used the following questions to guide the study:

R_1 How do student success rates in co-requisite English courses compare to success rates in traditional, freshman-level English courses?

R_2 Is there a difference in persistence between students who successfully completed co-requisite English courses compared to students who have completed traditional, freshman level English courses?

R_3 What is the difference in student completion, based on gender and race/ethnicity, of students who completed a co-requisite English?

R_{3a}-Is there a difference in student completion based on gender?

R_{3b}-Is there a difference in student completion based on race/ethnicity?

3.4 Rationale for Methodology

The present study was conducted using a quantitative methodology. The quantitative approach is best when identifying factors that influence an outcome, the utility of intervention(s), or trying to understand the best predictors of outcomes (Creswell, 2003). Broadly, quantitative research is focused on numerical issues and the relationships between variables (Balnaves & Caputi, 2001). As its subjects are numerical or quantified in nature, quantitative inquiry is closed-ended and short form (Creswell, 2003). This means that quantitative data can be collected

from large sample sizes and analyzed effectively as such (Balnaves & Caputi, 2001). However, in exchange for this strength, quantitative research must be focused on very specific outcomes that can be quantified using validated instrumentation if they are not inherently quantitative (Creswell, 2003). As a result, quantitative research cannot be exploratory.

Quantitative research suited this study for several reasons. First, a quantitative method is relational, and all three research questions that guided this study pertain to the relationships between key variables. Secondly, the variables of interest already existed in quantified forms within school records. This aligns with both the nature of quantitative data and with the way in which quantitative research can make use of large datasets to create more accurate and powerful results. In addition, the strength of quantitative research aligns with this study because it means that the study results can be more meaningfully applied in practice.

By contrast, qualitative inquiry is descriptive in nature (Merriam & Tisdell, 2015). A qualitative study uses open-ended description to explore a broad phenomenon rather than specific variables (Merriam & Tisdell, 2015). Qualitative data, being exploratory and descriptive, are very long-form in nature and difficult to collect from large numbers of participants, much less analyze as such (Merriam & Tisdell, 2015). Qualitative research was not well suited for this study. First, the study focused on specific variables and their relationships in the data, not a broader phenomenon. Secondly, this study was focused on creating actionable outcomes in a way that required large sample sizes and statistical power, attributes that are at odds with a qualitative data collection strategy. Finally, the present study had little need for open-ended exploration because it focused on issues that were already well-defined. Hence, a qualitative research method was deemed misaligned and not used.

3.5 Type of Research Design

For this study, the researcher used a quantitative methodology. A non-experimental data analysis was implemented for a comparative design to examine course success rates and persistence in traditional freshman-level English classes compared to freshman-level English classes that were paired with a corequisite course, being either an Accelerated Learning Program (ALP) or other non-course-based options. Quantitative research can broadly be experimental or non-experimental. Experimental research is ideal because it can prove causation (Christensen et al., 2013). However, conducting an experimental study is highly demanding, requiring that the researcher be able to manipulate and control the variables for randomization (Christensen et al., 2013). In this study, manipulation was not feasible. The independent variables represented a school-level program that could not be manipulated for the purposes of the research. Hence, an experimental design was deemed to be impractical, necessitating a non-experimental design. Though weaker, a non-experimental research design can use real life data (Johnson, 2001).

The specific type of non-experimental design was a causal comparative design using archival data. Causal comparative research is used for comparing outcomes between two or more states that diverged outside the researcher's control (Johnson, 2001). Such was the nature of this study, comparing traditionally placed first-year English students with those enrolled in one of two co-requisite first-year Developmental English programs. By contrast, a correlational study looks at predictive relationships (Johnson, 2001). The present study focused on comparison rather than prediction, making a correlational design inappropriate. Archival data were collected and analyzed. With this in mind, the non-experimental study contained variables that were beyond the researcher's control. Using archival data and performing secondary data analysis allowed for the comparison among the two groups identified in the study. Though not as rigorous

as the experimental design, this type of data analyses provided the means for the researcher to study the problem and purpose could be addressed and research questions answered, thus providing new insights on how traditional freshman-level English courses compared to freshman-level English classes that were paired with a corequisite course.

3.6 Site Selection

A large, urban community college in southeast Texas served as the setting for this study. This institution is one of the largest in the state and is comprised of eight colleges and five satellite campuses which serves over 80,000 students. The study site included all campuses of the system, but only during the periods in which that campus implemented co-requisite instructional courses. Different campuses implemented co-requisite courses to different degrees and at different points in time, but all campuses implemented the same freshman-level English courses.

3.7 Population and Sample

The population under study was divided in two categories. The first population was all Southeast Texas Community College students enrolled in freshman-level English courses under a standard, traditional approach. The second population was all Southeast Texas Community College students enrolled in the co-requisite version of the same freshman English course, using either a co-requisite developmental course or a co-requisite, non-course-based developmental approach. The target populations comprised these same populations but delimited to the specific community college system that was designated as the study site in the prior section. In addition, the target population was delimited to students in these populations from Fall 2017-Spring 2020. The cutoff of Spring 2020 was because any data beyond that point would be skewed by the pandemic educational changes and might not represent an accurate reflection of the co-requisite course effect outside of pandemic conditions.

The sampling strategy for the study was exhaustive in nature—that is, all participants in the target population were included. This was achieved through the use of secondary data drawn from the Office of Analytics & Institutional Research. Risks to participants were minimal. Being that information gathered came from the Office of Analytics & Institutional Research, none of the participants in the study were recruited or contacted. All students' personal information was protected. The researcher was not given any of the students' personal information including name, address, phone number, nor email. Per a G*Power analysis with a statistical power of 80%, a medium effect size, and a significance level of 0.05, the minimum necessary sample size was calculated to be 143. Given the sampling strategy and the community college system's size, this minimum sample was met and well exceeded by the actual sample.

3.8 Instrumentation

The key variables for the study will be operationalized as follows:

3.8.9 Enrollment Type

Enrollment type is the independent variable. It was operationalized as a categorical variable based on student records. The categories are 0 for traditional placement into freshman English, 1 for co-requisite with ALP, and 2 for co-requisite with a non-course-based program.

3.8.10 Success

Success was the dependent variable in RQ1 and RQ3. Success was operationalized as the student's letter grade received in his or her class, and therefore as a categorical variable with values corresponding to all possible letter grades.

3.8.11 Persistence

Persistence was the dependent variable in RQ2. It was operationalized as a dichotomous variable representing whether the student was enrolled the next semester. Persistence was

operationalized at the semester level because the recency of the data meant it would be unclear if all students eventually graduated or not.

3.8.12 Gender

Gender is the independent variable in RQ3A. It was operationalized as a categorical variable with categories of male, female, and other.

3.8.13 Race/Ethnicity

Race/ethnicity is the independent variable in RQ3B. It was operationalized as a categorical variable using the categories that are used on the U.S. census.

3.9 Data Collection Procedures

After receiving approval from Kansas State University - Institutional Review Board, the researcher requested secondary, archival data from the Office of Analytics & Institutional Research at Southeast Texas Community College. This request consisted of data from previous semesters, dating back to Fall 2017. The researcher was interested in general student demographic data, including gender, race/ethnicity, and age. The instructional modality of the course, being online, face-to-face, or hybrid, was also of particular interest to the researcher.

The data requested from Southeast Texas Community College for Fall 2017 through Spring 2020 are as follows:

- Course Name
- Instructional Modality (online, face-to-face, or hybrid)
- Semester Term
- Student Enrollment Status (Full-time/Part-time)
- Number of Semesters at Campus
- Age

- Gender
- Race/Ethnicity
- Academic Standing (Passing/Failing)

In addition to these data points, the semester term in which the courses were taken could also yield interesting findings and well as the student's enrollment status as part-time or full-time, during the semester in which the paired, co-requisite course took place. These data points were restricted by the following criteria: freshman-level English classes paired with a non-course based option, or freshman-level English course that incorporated the Accelerated Learning Program, and successful course completion of traditional, freshman-level English.

The risks faced by subjects was minimal. The potential risks in a study like this are emotional distress and invasion of privacy. To minimize these risks, the researcher did not engage in any communication with the participants. In fact, all student information was depersonalized and only shown as a student identifying number to ensure there was no replication of student information.

For this research study, there were absolutely no financial cost to research participants. Because there were no financial costs associated with this study, there was not any compensation nor reimbursements to participants by the researcher. All data collected and used in the study was kept confidential. Only the researcher conducting the study had access to the data. The data acquired is anonymous and securely stored for five years.

3.10 Data Analysis

Variables for this study included the independent variable which accounted for the type of instruction that took place. There were three values for this variable, which include the traditional freshman level English course, freshman-level English paired with the Accelerated

Learning Program (ALP), and freshman-level English paired with a non-course-based option. For the purpose of analysis, one group was identified as students from a traditional freshman-level English course, and another group was identified as students from a co-requisite freshman-level English course. The dependent variables in this study helped examine what the researcher attempted to measure and what the outcomes were based on the intervention. For this study the dependent variables were successful course completion with a final grade of A, B, or C and persistence from one semester to the following subsequent semester. The researcher was interested in comparing the student success rates in traditional and co-requisite instructional models. Analysis began with descriptive statistics to describe the study sample. Demographic profile information of students from the data analysis were organized and presented for review and consideration. Frequencies and percentages were used to present the demographic characteristics of participants. The frequencies and percentages were used to describe the study participants.

To answer the research questions and test their corresponding hypotheses, Chi-square statistics were utilized because both the dependent and independent variables were nominal in nature. For the first hypothesis, the success rates in terms of the academic ratings A, B, C were considered as the dependent variable. Academic ratings of A, B, and C were considered as successful while academic ratings of F, W, or I were considered unsuccessful. The classification of students in freshman-level English courses as traditional or co-requisite programs was considered the independent variable. A Chi-square test was conducted. A significance level of .05 determined whether there was sufficient evidence to reject the null hypothesis.

For the second hypothesis, the persistence in terms of the change of academic rating from one semester to the next were considered as the dependent variable while the classification of

students in freshman-level English courses as traditional or co-requisite programs was considered the independent variable. A Chi-square test was conducted. A significance level of .05 determined whether there was sufficient evidence to reject the null hypothesis.

For the third sets of hypotheses, students were further classified based on gender as well as race/ethnicity. Differences were determined using Chi-square analysis considering gender and race of students as independent variables. Only students from co-requisite programs were included in the analyses. A significance level of .05 was also considered for analyses.

3.11 Limitations and Delimitations of the Study

Variables such as number of times a student has taken a developmental English or freshman-level English course could affect the results in the analysis of the data. To this end, the findings from this study may not be generalizable to other institutions, especially those that have not fully embraced redesigned instructional models in their developmental education programs. The population in this study were limited to the students enrolled in the selected site. Because it is a multi-campus community college system, the researcher analyzed data from the system's campuses that offered Developmental English courses. Southeast Texas Community College requires all incoming students to take the Texas Success Initiative Assessment, as does all other institutions of higher education in Texas. The student's results from this formal assessment determine college readiness, or lack thereof, and ultimately enrollment in either college-level, credit-bearing classes or in developmental courses.

The researcher identified delimitations including an area of focus regarding specific co-requisite instructional models. Because there are several offered at Southeast Texas Community College, only the students that had been enrolled in freshman-level English coursed paired with a non-course based option or the Accelerated Learning Program during a 16-week semester were

incorporated into the data analysis. Because Southeast Texas Community College has multiple campuses, the researcher focused this study on the campuses in the system that were known to have implemented the Accelerated Learning Program and/or the co-requisite instruction model being non-course based options in Developmental English. Also, the design of the instructional models studied may not be generalizable.

In an effort to achieve optimal results from the data requested, the researcher analyzed data from courses that are a standard academic term at Southeast Texas Community College of 16 weeks. These terms are referred to as Fall (late August – mid-December) and Spring (early January – mid-May) semesters. The areas for potential study that occur within this timeframe are many. However, the researcher chose to focus on the effects resulting from co-requisite instruction of Developmental English that is paired with a gateway English course such as ENGL 1301. The primary goal was to determine which co-requisite instructional model, non-course based options or the Accelerated Learning Program, will help the most students be successful in their educational pursuits, if any.

3.12 Conclusion

The purpose of this quantitative study was to compare the successful course completion and persistence of students enrolled in co-requisite, developmental English courses paired with freshman level gateway English courses to students enrolled in traditional, freshman level English courses. In conducting this study, the researcher sought to fill a gap in the literature by examining modes of instruction that will help students be successful and persistence in English courses, both developmental and credit level. Quantitative comparative analysis of inferential statistics was the approach the researcher proposed to carry out the non-experimental study using secondary, archival data analyzed using the Statistical Package for the Social Sciences, also

known as SPSS, software. Initial approval from the Institutional Review Boards at Southeast Texas Community College and National American University was granted, after which the researcher transferred to Kansas State University and obtained Kansas State University's Institutional Review Board approval as well. The results and findings are presented in the following chapter of this study.

Chapter 4 - Results

4.1 Introduction

The purpose of this quantitative causal comparative study was to compare the successful course completion and persistence of students who were enrolled in co-requisite Developmental English courses paired with freshman level English to students enrolled in traditional freshman level English courses at all campuses of Southeast Texas Community College. Understanding the impact of co-requisite instructional models such as the Accelerated Learning Program and non-course-based options, has the potential to transform and equip instructional programs. Having researched-based evidence will provide institutions with data allowing campus and departmental leadership to implement more strategic practices in course offerings and instructional delivery.

4.2 Data Collection

After receiving approval from the Institutional Review Board, the researcher requested secondary, archival data from the Office of Analytics & Institutional Research at Southeast Texas Community College. This request consisted of data from previous semesters, dating back to Fall 2017. The researcher was interested in general student demographic data, including gender, race/ethnicity, and age. The students' enrollment status and the instructional modality of the course, being online, face-to-face, or hybrid, was also of particular interest to the researcher. Data on enrollment type, success, and persistence were also collected.

After gathering the data, the data needed for this study were imported to SPSS. A random sample of 300 student data from each of the enrollment type group was also selected using SPSS. Random sampling was used because there was a large amount of data for each enrollment type group. Chi-square analysis is sensitive to sample size and may falsely provide a significant result for even very small, non-meaningful differences (Bergh, 2015). Additionally, for co-requisite

with non-course-based program, only 62 samples were collected. Thus, to avoid an error from using too large a sample and to bring the group sizes closer to one another, a final sample of 662 student data were included in the analyses. The data were analyzed using descriptive statistics and inferential statistics to address the research questions posed in the study.

4.3 Results

A sample of 662 student data was included in the analyses. There were 300 samples from the traditional enrollment group (45.3%), 300 samples from the co-requisite with ALP (45.3%), and 62 from the co-requisite with non-course-based program group (9.4%). However, for the purpose of analysis, the 300 samples from the co-requisite with ALP and 62 samples from the co-requisite with non-course-based program group were combined into the co-requisite group with 362 samples (54.7%). The student groups were combined this way based on the data that was provided. As a multi-campus college, a single source of coding for co-requisite courses had not yet been established.

Table 1 presents the frequencies and percentages of demographic characteristics of students. Majority of the participants identified as Hispanic (51%), with nearly a quarter being Black (24%). Whites comprised only 16% of the sample. American Indian and Asian participants made up a total of 4.5%. The same was true for students that identified as Multiracial or their ethnicity was unknown or unspecified (4.5%). In terms of gender, there were more females (61.2%) than males (38.8%). For the course delivery method, the vast majority of participants were in face-to-face method (82.3%). In all, less than 20% of students were in the online method (14%) or the hybrid method (4%). The term of enrollment ranges from Fall 2017 to Spring 2020. There were more participants during Fall seasons of 2018 (26.3%), 2019

(23.0%), and Spring 2019 (17.5%). For the academic load, part-time students (79%) outnumbered full-time students (21%) by almost 4:1.

Table 4.1. Frequencies and Percentages of Demographic Characteristics (N = 662)

		Frequency	Percent
Race/Ethnicity	Amer-Indian	2	.3
	Asian	28	4.2
	Black	158	23.9
	Hispanic	340	51.4
	White	104	15.7
	Multiple	18	2.7
	Unknown	12	1.8
	Total	662	100.0
Gender	Male	257	38.8
	Female	405	61.2
	Total	662	100.0
Course Delivery Method	Face-to-Face	545	82.3
	Online	24	3.6
	Hybrid	93	14.0
	Total	662	100.0
Term of Enrollment	Fall 2017	71	10.7
	Fall 2018	174	26.3
	Fall 2019	152	23.0
	Spring 2018	41	6.2
	Spring 2019	116	17.5
	Spring 2020	81	12.2
	Summer 2018	14	2.1
	Summer 2019	13	2.0
	Total	662	100.0
Academic Load	Full-Time	140	21.1
	Part-Time	522	78.9
	Total	662	100.0

The age of participants was measured using a continuous scale in the archival data. Thus, measures of central tendencies were used to present the age of participants. As observed, the mean age of participants was 20.57 (*SD* = 5.53). The age range was from 15 to 55 years old.

Table 4.2. Descriptive Statistics of Participants' Age

	N	Min	Max	*M*	*SD*
Age	662	15	55	20.57	5.53

Three research questions were posed in the study. The three questions were addressed using Chi-square analyses because the variables were nominal in nature. The results of the Chi-square analyses determined whether the success and persistence of students is related to their enrollment in traditional freshman-level English courses and freshman-level English courses paired with a co-requisite.

Question 1 - How do student success rates in co-requisite English courses compare to success rates in traditional, freshman-level English courses?

The result of the chi-square test for enrollment type and success is presented in Table 3. The result showed that there were more traditional (70%) than co-requisite participants (58%) who succeeded. The results of the chi-square analysis determined that there was a significant difference in the success of students based on course type (χ^2 (1,662) = 11.227, p = .001). Thus, the result showed that the success rate for traditional participants was significantly higher than the success rate of co-requisite participants. Based on this result, the null hypothesis, which states that students in co-requisite, developmental English courses would succeed at higher rates than students in traditional, freshmen-level English courses, could not be rejected.

Table 4.3. Chi-Square Analysis of Enrollment Type and Course Success

		Succeeded			
		No	Yes	Total	Success Rate
Enrollment Type	Traditional	89	211	300	70.3%
	Co-requisite	153	209	362	57.7%
Total		242	420	662	

Note. $\chi^2(1,662) = 11.227$, $p = .001$

Question 2 - Is there a difference in persistence between students who successfully completed co-requisite English courses compared to students who have completed traditional, freshman level English courses?

The result of the chi-square test for enrollment type and persistence for successful students is presented in Table 4.4. The results showed that there were more successful students in the traditional course who persisted to the next academic semester (87%), while 79% of the students in the co-requisite group persisted to the next semester ($N = 165$). The result of the chi-square analysis determined that there was a significant difference in the persistence of successful students based on enrollment type (χ^2 (1,420) = 5.095, $p < .024$). Thus, the results showed that there was a difference in persistence to next the next semester based on type of English course enrollment. There were significantly more students enrolled in the traditional course who persisted to the next semester than students who were enrolled in a co-requisite course. There were also significantly more successful co-requisite students who did not persist to the next semester than successful traditional students. Given the result of the analysis, the null hypothesis, stating that students in co-requisite developmental English would persist to the next semester at higher rates than students in traditional, freshmen-level English courses could be rejected.

Table 4.4. Chi-Square Analysis of Enrollment Type and Persistence of Successful Students

		Persisted to the Next Semester			Persistence Rate
		No	Yes	Total	
Enrollment Type	Traditional	27	184	211	87%
	Co-requisite	44	165	209	79%
Total		71	349	420	

Note. χ^2 (1,420) = 5.095, $p < .024$

Question 3 - What is the difference in student completion, based on gender and race/ethnicity, of students who completed a co-requisite English course?

R_{3a}-Is there a difference in student success completion based on gender?

R_{3b}-Is there a difference in student completion based on race/ethnicity?

To address the third research question, students who were enrolled in a co-requisite course were considered. There were more male students who succeeded (55%) than male students who did not succeed. On the other hand, there were also more females who succeeded (65%) than females who did not succeed. The result of the chi-square analysis determined that there was no significant difference in the success of students in a co-requisite program based on gender (χ^2 (1,362) = 3.647, p = .056). The result indicates that the null hypothesis, which states that success for students in co-requisite courses would vary as function of the students' gender, could not be rejected.

Table 4.5. Chi-Square Analysis of Success and Gender for Students in Co-Requisite Course

		Succeeded			Success Rate
		No	Yes	Total	
Gender	Male	56	68	124	55%
	Female	83	155	238	65%
Total		139	223	362	

Note: χ^2 (1,362) = 3.647, p = .056

To assess whether there is a significant difference in success based on race/ethnicity, the data for students enrolled in co-requisite groups were also considered. There were more Hispanics (68%) who succeeded while there were more Blacks who did not succeed with a success rate of only 40%. The result of the chi-square analysis determined that there is no significant difference in the success of students in co-requisite programs based on race/ethnicity (χ^2 (5,362) = 9.452, p = .092). Based on the result, the null hypothesis, stating that success for students in corequisite courses would vary as a function of students' race/ethnicity, could not be rejected.

Table 4.6. Chi-Square Analysis of Success and Race for Students in Co-Requisite Course

		Succeeded			Success Rate
		No	Yes	Total	
Race/Ethnicity	Asian	3	5	8	63%
	Black	58	59	147	40%
	Hispanic	69	144	213	68%
	White	4	7	11	64%
	Multiple	3	5	8	63%
	Unknown	2	3	5	60%
Total		139	223	362	

Note. χ^2 (5,362) = 9.452, p = .092

4.4 Summary

A total of 662 students' data was randomly sampled to determine whether there was a significant difference in the success and persistence of students enrolled in traditional English compared to those enrolled in co-requisite Developmental English courses. The data showed that the success rate for traditional participants was significantly higher than the success rate of co-requisite participants. Students enrolled in the traditional course significantly persisted to the next term more than students enrolled in a co-requisite program. In addition, the chi-square

analysis determined that there was no significant difference in the success of students in co-requisite courses based on gender and race/ethnicity.

Chapter 5 - Conclusion

5.1 Introduction

In an effort to help mitigate and reform problematic issues in Developmental Education, the State of Texas enacted House Bill 2223 in 2017. This bill required public, post-secondary colleges and universities to incrementally increase their offerings of co-requisite developmental courses (Mokher & Park-Gaghan, 2023). These courses were specifically designated for students who are deemed "academically unprepared" for college-level courses by the state's placement test. This initiative was widely accepted and enacted upon due to research-based recommendations suggesting short-term student success outcomes, such as a significant increase in students' pass rates in their college-level gateway courses, as well as long-term outcomes, like improved graduation rates, for example (Levine Brown & Ciez-Volz, 2023). This study sought to examine whether or not similar findings would result from instructional practices at Southeast Texas Community College.

The purpose of this quantitative, causal-comparative study was to compare the successful course completion and persistence of students who were enrolled in corequisite, developmental English courses to students enrolled in traditional, freshman-level English courses at campuses across Southeast Texas Community College. Understanding the impact of co-requisite instructional models, such as the Accelerated Learning Program and non-course-based options, has the potential to transform and equip instructional programming. As such, curricular reform continues to be at the forefront as corequisite, integrated, and various other accelerated models are being implemented with the goal of reducing time spent in developmental education; the goal is to increase students' persistence, retention, and success (Hodges, 2020, p.8). Having researched-based evidence will provide institutions with data allowing campus and departmental

leadership to implement more strategic practices in course offerings, and instructional delivery, impacting student retention and success. This chapter presents the findings of this study and their implications for practice and future research.

5.2 Summary of Findings

The analysis of retrospective data revealed conflicting results. From the raw data acquired from Southeast Texas Community College, the researcher was able to import and desegregate the data to find results for the study's primary research questions. Student data from Fall 2017 through Spring 2020 were analyzed based on particular areas of focus and interest to the researcher, such as student age, gender, race/ethnicity, mode of instruction, and continued course enrollment in the subsequent semester.

The first question the researcher sought to answer asked how student success rates in co-requisite English courses compared to success rates in traditional, freshman-level English. The statistical analysis for this question revealed that there was a significant difference in the students' success based on the course in which they were enrolled. The students in the traditional, freshmen-level English course faired considerably better compared to the students in the co-requisite English course.

For the second question, the analysis revealed that when it came to persistence, students who were enrolled in the co-requisite English course persisted at a less significant rate than the students in the traditional, freshman-level English course. There were significantly more students from the traditional English course who persisted and continued to enroll in the courses the following semester.

The last research question is essentially two-fold, and the researcher sought to examine if there was a difference in student completion based on certain demographic criteria. In comparing

the student's completion based on their gender, the results of the statistical analysis found that when it came to students that were enrolled in the co-requisite English course, there was no significant difference in course completion based on gender, nor was there a significant difference in student completion based on race/ethnicity.

5.3 Discussion of Findings

The results of this study suggest that corequisite, English courses may warrant further research when it comes to improving student success rates and persistence when compared to traditional, freshman English courses. Because this study sought to pose a question rather than prove an argument, the results largely conflict with other literature.

A recent study conducted in 2022 by Miller, et al., findings yielded similar results. The study had key outcomes of interest that included whether or not students passed freshmen-level English by the first or second academic year, along with the students' persistence in academic years one and two after taking a co-requisite English course. While the means were the treatment and control groups "none of the differences in analyses were statistically significant at the 5% level" (Miller, et al. 2022, p.92). However, what is interesting to note is that several students in the study's control group caught up to their peers in the treatment group by the end of the second academic year, and those students were 18.4% more likely to pass their English course. This was even with tests of equivalence in models and subgroups indicating a lack of statistically significant results (Miller, et al., 2022).

The results for the researcher's current study were practically significant just not statistically significant and warrant further research. Similar to research performed by Dole in 2021, the students in the co-requisite group did not outperform students in other groups including those in pre-requisite courses or stand-alone sections. In a separate study conducted in in 2021, it

was found that there were no differences in the passing rates of the corequisite, English course by students in the full sample. However, when the data was disaggregated by TSIA quartile results, the only statistically significant difference was among students in quartile 3. Those in a corequisite course that was sequential (taken in the same semester, usually for a few weeks before the start of the freshmen-level English course) typically were more likely to pass gateway English than those in concurrent corequisites (86.27% versus 77.25%, respectively) (Park-Gaghan et al., 2021). Results from another quasi-experimental research study in Tennessee and Texas also showed no impact of corequisites in math or English on persistence and completion, although the studies did find that it increased the likelihood of students taking subsequent college-level courses in the future (Cunha, et.al., 2023). Miller et al., (2022) also found that despite positive effects on passing college-level courses and accumulation of college-level credits, there was no evidence that the treatment affected persistence to the end of the first or second academic year.

The variation in results suggests there may be a need to further disaggregate data by campuses. Dole (2021) further supported this notion after conducting his study and suggested additional research be done by individual campuses and larger community college systems regarding "efficacy of compression versus a comprehensive program with components [that] include full-time enrollment, block scheduled first-year courses, cohort course taking, financial support, intrusive and mandatory advisement, a student success seminar, career services, and tutoring" (2021, p.136).

The results of the current study's quantitative analysis presented but one stance and perspective. To get a deeper understanding of the outcomes, the use of qualitative methods may be more instrumental especially since so little is relatively little is known about students'

experiences in corequisite remediation (Daugherty et al., 2021, p.26). Dole (2021) and Park-Gaghan (2021) advised researchers, institutions, and policymakers to take a deeper look at how the effects of corequisite course structure and intensity may vary for different student subgroups in specific categories like ethnicity, gender, economic level, and whether or not a student is a first-generation college student. This type of examination could lead to a deeper understanding of whether success in all groups is equitable or if any one group is more at risk than another. Knowing this level of specificity would allow more intentional intervention or support to be given to those groups with the greatest need.

Further investigation of the instructional approach and course structure could also provide some insights as to why outcomes are what they are. Dole (2021, p.107) also recommended that perhaps looking at instructional approaches such as active learning and student-focused learning, and researching how students can better transfer learning would be helpful. While Porter believed that co-requisite curriculum that is embedded in courses and that are focused on culturally relevant assignments, that are thoughtfully sequenced, and gave attention to noncognitive skills like planning, time management, and the knowledge of college procedures and norms would be most beneficial. This is especially helpful when these types of activities can be built into the curriculum to help students navigate college life and coursework (2023, p.280).

Members of faculty are an integral element in any institution. It is possible that continued faculty engagement and training is needed in programmatic initiatives like co-requisite programs. Hogan (2020) noted evidence from his study repeatedly demonstrated that what mattered to the men of color interviewed was not the race or gender or orientation of the faculty member, but rather their willingness to give individualized attention and clear feedback and support was

evident. Another study found that faculty often struggled with how to adequately remediate the skills of underprepared students enrolled in corequisite courses while also ensuring mastery of college-level content that was to be taught Park-Gaghan et al., 2021). This undoubtedly increased the workload experienced by faculty and students in corequisite courses. Depending on several factors, whether they be personal, social, academic, or otherwise, this can definitely have an effect on students' completion and whether or not they persist.

It is also plausible that as these institutions work with individuals who are academically underprepared they may be in need of a more holistic approach in their educational experience. The results of Porter's 2023 study advised that institutions offering co-requisite courses "have a responsibility to help students navigate the complex (and often confusing) systems of college, whether that means integrating such information into the curriculum or informing students about on-campus support services" (p. 276). One study done in 2023 found a way to have some of their corequisite courses successfully integrate holistic support services and culturally relevant instruction with great success (Cerna, 2023, p.6.).

Course organization and structure are other important factors. Park-Gaghan et al. (2021) explored the relationship between corequisite course enrollment and student success along two dimensions of corequisite course design: structure and intensity. It could be that students may benefit from more engagement and courses that offer a more culturally relevant approach. Redesigned developmental education reforms included emergent instructional models such as Puente and culturally responsive student success approaches like the Men of Color Academic Achievement (MoCCA) project at Community College of Baltimore, Corequisite Remediation for Latinx Students or Mentoring to Achieve Latino Educational Success (Project MALES) run by the University of Texas at Austin. Pedagogical models such as these may be particularly

suited and worth consideration towards adaptation to incorporate broader structural reforms such as corequisite remediation **(**Coca, Daugherty, & Miller, 2023).

The theoretical frameworks for the researcher's current study can also offer a lens for perspective-taking regarding the final results of the analyses. Porter's 2023 study implored, "For racially-minoritized students taking coreq support, we have the opportunity to set the stage for how our colleges and universities view them and how we invest in them" (p.284). Tinto echoed similar sentiments in a recent interview advising, "Changes in higher education administration must move from asking how to retain students to asking what we can do to make them want to stay." (Omid Fotuhi, 2021). Astin's IEO model of development also stressed the importance of the environment in making students feel welcome and that students are a significant and meaningful part of the institution so that they would want to return and continue to be a part of it.

5.4 Implications for Practice

The findings of the current study have several implications for practice. First, they provide evidence that community colleges should consider continuing to refine corequisite models for instruction, course structure, and institutional practices for co-requisite English courses. By providing students with additional support and resources, corequisite courses may help to improve student success rates and retention.

While many of the results from the research questions themselves rejected the null hypothesis, there is something to be said for the results as they are. For example, the first research question compares the successful completion of students taking co-requisite English to those in traditional, freshman-level English. While the students in traditional English successfully completed at a higher rate, the fact that almost 60% of co-requisite students that were successful is still substantial.

The second research question examined student persistence. Of the students who were successful in the co-requisite group, one might think that they would be more inclined to continue their studies and re-enroll in the subsequent semester. However, only 79% of that group continued to enroll in courses the following semester. While that is an encouraging statistic, it causes one to wonder why the other 21% would not enroll, especially if they passed the course.

It may have been rather presumptuous to infer that co-requisite students would fare just as well, if not better, than their peers in traditional English courses. Thus, the implications for practice. It is the hope of the researcher that further measures, research, and practices will continue to improve outcomes for students and institutions alike. To truly see gains in student success and persistence, institutional practices and operations may need to evolve. As Levine Brown & Ciez-Volz suggests, "corequisite support is both a structural and a pedagogical solution (2023, p.10)."

One thing for programs to consider as institutions plan and redesign their instructional models could be to incorporate various pedagogical approaches like trauma-informed pedagogy. Trauma-informed pedagogy considers all the dimensions of experiences that students bring to bear in their learning and accepts lived experience as knowledge. Faculty find value in the different positions and perspectives from which people can contribute. However, trauma-informed pedagogy also respects the privacy of students and gives students the space and agency to decide for themselves what they wish to disclose (Porter, 2023). Porter (2023) also suggests that "a trauma-informed approach can emphasize process-driven learning and assign material that is culturally relevant so as to allow students to process and articulate their experiences in the moment" (p.276).

Other considerations for implication are to consider the implementation of generative artificial intelligence, more commonly referred to as AI, in classroom instructional practices and how it can be used as a tool. The U.S. Department of Education (2023) urges institutions to recognize and build on prior accomplishments in educational technology, such as broad frameworks for safe AI (such as the Blueprint for an AI Bill of Rights). Educational leaders are encouraged to reach beyond early accomplishments and frameworks to address emerging opportunities and risks that are specific to novel capabilities and uses of AI in education (p.52). Because this is such a new and emergent technology, there are various discussions being had by practitioners as to how research-based, best practices might be implemented. Going beyond academic integrity, there are ample opportunities for large language models, multimodal models, and generative AI tools that can be used in the educational landscape to helps expand learning opportunities especially for underprepared students taking corequisite courses (Alexander, 2024).

A longitudinal, mixed methods study on retention and persistence in various corequisite instructional models is another worthwhile endeavor. More research is needed to see what issues may have caused students not to persist. Coca, Daughtrey, & Miller's 2023 study found that there were no short-term impacts on persistence across various student groups, which suggests that the corequisite course reforms at the institutions they studied did not fully address the factors that were driving student dropout after completing co-requisite courses. A separate study by Daughtry et al. (2021) found that students who were assigned to corequisite remediation courses had higher rates of passing gateway English and the following English course relative to students assigned to standalone developmental education courses; they also earned more credits overall even though there weren't any differences in persistence rates.

5.5 Limitations of the Study

While the results of this study are promising, there are several limitations should be considered. First, the study was conducted at a single community college, and the results may not generalize to other institutions or contexts.

Second, the study did not account for differences in student cut scores, the predetermined points range for scores on a test that results in a specific outcome based on the scale of ones score, and placement or instructor characteristics (Zieky & Perie, 2006). Future research should examine the impact of these factors on the effectiveness of corequisite course models. This may include using advanced statistical models that take into account prior performance. Utilization of advanced statistical models could also equip researchers to yield deeper results and findings regarding this topic. For example, there may be recommendations to consider whether or not the core issue could be more of the policy or standard for the cut score as opposed to the student performance or progress. To this effect, there may be a need to consider non-academic or non-institutional factors that may be considered as barriers to student outcomes and performance.

Another limitation of the study was the variation in the labeling of courses and co-requisite courses. There was not a cohesive means for labeling the courses that were supplemental or co-requisite. The researcher had to obtain additional guidance and clarification from the Office of Analytics & Institutional Reporting at Southeast Texas Community College.

5.6 Contributions of the Study

The researcher aimed to contribute to the body of knowledge regarding corequisite models and their impact on student success rates. By comparing the success rates of students in traditional, freshman-level English courses to students in co-requisite Developmental English courses, this study provided valuable insights into supporting students enrolled in introductory

courses. Relying on the wisdom of Dr. Vincent Tinto, “What can we learn when we view the institution through the lens of the student–first, belonging and mattering is what matters most, second, their perceptions of their abilities and other’s perceptions of their abilities (stereotype threat), and lastly, relevance of their studies” (Omid Fotuhi, 2021). Even with the promising effects of redesigned developmental education, it will never be a “one size fits all approach.” After all, it is individuals who are enrolled in these courses, attending dynamic institutions, bringing the uniqueness that is a part of their intersectionality as they try to achieve their highest goals.

5.7 Conclusion

In conclusion, this study compared students enrolled in traditional, freshman-level English to students enrolled in co-requisite Developmental English courses. The researcher examined factors such as successful course completion, persistence, and varying success by gender and race/ethnicity. The results of the analysis for this study were rather surprising, especially compared to the more pronounced literature on the subject, but such can be the case when new and different questions and perspectives are being investigated.

While there were limitations in the study, this study contributes to the field as it provides important insights into the impact of different approaches to supporting students in introductory courses. Future research should continue to explore the impact of instructional practices, course structure, and holistic student experiences. Although the co-requisite instruction initiative has been in effect for several years, there is still much work to be done to continue to improve key performance outcomes for students and higher education institutions.

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